A Study of Translation of Measure and Prevalence of Pre-operative Anxiety, and Patients' Preference of Non-Pharmaceutical Pre-operative Anxiety Reduction Intervention in Nigeria

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Abstract

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Title:

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Key words:

Pre-operative, anxiety, elective, surgery, preference, intervention, non-pharmaceutical, translation

Background

Pre-operative anxiety remains a serious problem affecting surgical patients. The prevalence rate ranges between 60% to 80% percent among western surgical patients. Nothing is known about the prevalence of pre-operative anxiety among Nigerian Hausa speaking elective surgical patients. It is also not known what non-pharmaceutical pre-operative anxiety reduction interventions are preferable in reducing their anxiety before they undergo elective surgery.

Method

Participants

Thirty adult patients scheduled to undergo elective surgery in a tertiary health facility in north eastern Nigeria

Design/procedure

The study consists of three phases: Phase 1- translating and cross-cultural validation of Amsterdam Pre-operative Anxiety and Information Scale (APAIS) into Nigerian Hausa Language. Phase 2- administering the translated scale to assess the prevalence of pre-operative anxiety among the study participants. Phase 3 - finding out which non-pharmaceutical pre-operative anxiety reduction interventions would the Hausa speaking

elective surgical patients prefer in reducing their anxiety before they undergo elective surgery.

Results

The translated Hausa and validated version of the scale (APAIS-H) has shown a good psychometric property with Cronbach's alpha of 0.82 for anxiety related to surgery subscale and 0.71 for information desire subscale respectively. The finding of phase 2 revealed that there is high prevalence of pre-operative anxiety among the Hausa speaking elective surgical patients. The patients' anxiety continues to increase in intensity as they approach their time of operation. Results of phase 3 shows that the Hausa speaking elective surgical patients have high preference for counselling services, information and education, video-film intervention and low preference for music therapy.

Conclusion

There is high prevalence of pre-operative anxiety among the Hausa speaking elective surgical patients. It is therefore recommended that, before undergoing elective surgery, clinicians should assess the Hausa patients' pre-operative anxiety so as to provide them with their preferred pre-operative anxiety reduction interventions proportionate to their level of anxiety. The thesis argued that the translated and validated APAIS-H is be a good measure of assessment particularly of those Hausa patients who could not read and understand the English Language version of assessment tool.

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1 CHAPTER ONE: INTRODUCTION

1.1 Background to the study

Most patients undergoing surgical operations are affected by a considerable degree of anxiety known as pre-operative anxiety. Pre-operative anxiety is described as an unbearable state of nervousness, apprehension, and tension (Pritchard 2009a; Ali et al. 2014; Nigussie et al. 2014). Numerous researchers have reported different causes of pre-operative anxiety among surgical patients. Negative expectations of what may happen intra-operatively or postoperatively, and the fear of pain, body mutilation, loss of control and freedom are documented causes of pre-operative anxiety (Bailey 2010; Aziato and Adejumo 2014). Other causes of pre-operative anxiety are signs of causal diseases such as diabetes and hypertension, information from family members and friends, and past experience of anaesthesia and surgical operations (Wakim et al. 2010). Perks et al. (2009) found that common causes of pre-operative anxiety include waiting for the surgery, expectation of postoperative pain and fear of the operation and of post-surgical incapacitation.

Healthcare providers consider pre-operative anxiety as a serious problem affecting surgical patients. Studies have confirmed that, in many patients, pre-operative anxiety increases the experience of postoperative pain, disturbs the functions of the immune system, causes delays in surgical wound healing and caused variability in patients' vital signs (Bailey 2010; Ali et al. 2014). Overall these effects could lead to the postponement of the surgery, prolonged hospital stays, and consumption of higher doses of analgesics postoperatively (Walker and Smith 2009).

A study by Deardoff (2009) reported that pre-operative anxiety increases the release of catecholamine, resulting in physical changes such as increased heart rate, narrowed blood vessels, hyperventilation and blood setting with fast coagulation. Catecholamine is released to prepare the body for 'flight or fight' in

response to a physical threat. A higher release of catecholamine causes medical problems like muscle tremors, diabetes, heart attack and stroke. Higher catecholamine in the body decreases the functions of the immune system, causing susceptibility to opportunistic infections and prolonged surgical wound healing (Deardoff 2009).

According to Viars (2008), physical problems such as headache, dry mouth, flushing and nausea among surgical patients are symptoms commonly caused by pre-operative anxiety. Pre-operative anxiety has also been found to cause dizziness. Bilberg et al. (2012) explained that balance functioning and emotions have similar neurological pathways. Therefore, lengthy dizziness and imbalance in most surgical patients are caused by pre-operative anxiety (Bilberg et al. 2012).

1.2 **Rationale for the study**

Considering pre-operative anxiety to be a serious problem affecting surgical patients, healthcare providers try to reduce it; otherwise, it will be difficult for surgeons to operate on anxious surgical patients. Most African countries, including Nigeria have acute shortage of surgical staff and surgical equipment. These problems pose challenges to surgical patients with high pre-operative anxiety in terms of benefiting from the general surgical care (Saka 2011). In addition to the problems of inadequate staff and surgical equipment, studies have reported that many healthcare workers, including the few surgeons, anaesthetists, general practitioners and nurses in Africa, either migrate to countries overseas or leave public hospitals for the private and non-governmental organisations. This causes a serious problem in providing essential medical and surgical care to patients (Lavy et al. 2011; Saka 2011).

In Nigeria, apart from the acute shortage of healthcare professionals across the country, the few such available are mainly concentrated in urban centres. The geographical distribution of the health workforce also shows a wide disparity between the southern and northern parts of the country, with the southern part of the country having up to 75% of the health workforce. Similarly, 75% of health training institutes are

located in the southern part of the country (Federal Ministry of Health 2008; Henry et al. 2012; Ojo et al. 2014). Saka (2011) reported that the southern states of Lagos and Osun have 33.4 and 40.1 medical doctors per 100,000 members of the population respectively, while the northern states of Bauchi and Yobe have only 2.2 and 1.3 medical doctors per 100,000 members of the population respectively (Saka 2011).The trend is similar in the nursing and midwifery professions. Data from the Nursing and Midwifery Council of Nigeria show that the majority of nurses and midwives in the southern states of Enugu and Akwa Ibom are 59.1 and 55.8 per 100,000 members of the population respectively. Conversely, the northern states of Yobe and Jigawa have 10.6 and 5.2 nurses and midwives per 100,000 members of the population respectively (Saka 2011)

Of all the health professionals in the Nigerian health sector, surgeons, anaesthetists and surgical nurses are the most scarce (Saka 2011). This could be due to the difficulties in studying these courses, difficulties in gaining admission and inadequate training institutes or departments undertaking training in these specialised areas in the country (Federal Ministry of Health 2008).These problems limit the provision of essential surgical care and pre-operative preparations to surgical patients. The problems are further compounded by the increasing number of elective surgical cases, owing to the advances in medical and anaesthetic technology (Guo et al. 2012). This reduces the time spent by anaesthetists, nurses and other members of the pre-operative assessment team on preparing and reducing patients' anxiety and ensuring their suitability for the planned surgical operation.

Based on the above, the use of non-pharmacological (psychological or behavioural) intervention to prepare elective surgical patients and reduce their pre-operative anxiety is likely to be of advantage to both the patient and the hospital. It is likely to reduce the effects of drugs on the body systems and the health of the patients, and also likely to reduce the cost of their medication, improve their general acceptance of the surgery, hence the need for this study. According to (Gorayeb

et al. 2009) psychological preparation of surgical patients leads to greater satisfaction with the surgery and enhances the patients' pre-operative relationship with surgical team members. It enhances post-operative response to medication and reduces the risks to patients' emotional stability.

1.3 **Research questions**

This research is designed to answer the following research questions:

a) What are the necessary steps in translating a health survey questionnaire?

1.3.1 Rationale for research question (a)

Most of the questionnaires used in measuring health state, efficacy of interventions or health research have been developed in English-speaking countries such as the United States (US), United Kingdom (UK) and Australia. Therefore, when selecting such measures for diagnosis, therapeutic assessment or research, the best choice for clinicians and investigators in non-English-language-speaking countries is to translate and validate such already existing scales and confirm their psychometric properties on the population they are intended to be used. The literature indicates that cross-cultural adaptation of research tools has strong advantages over developing a new tool Wild et al. (2009). First, there are many validated scales already in existence and are obtainable ready to be used. Second, most of these questionnaire scales were developed on the bases of acceptably well-established frameworks. The cross-cultural adaptation of research tools is not only limited to translation, but also about allowing for the conceptual and item and semantic equivalence, as well as operational equivalences between the source and the target language versions in order to allow for international research, cross-cultural comparison and meta-analysis Herdman et al. (1998).

Against this background, in the present study, the Amsterdam Preoperative Anxiety and Information Scale (APAIS), was translated into the Hausa Language. APAIS was chosen considering the fact that other similar available instruments were not developed specifically to measure anxiety related to surgery and that most of these scales consist of many items which make them not suitable to be administered to preoperative patients waiting to undergo surgery. More so, the Hausa people for whom the

translation of APAIS was made have low literacy and numeracy skills and therefore would not be able to read and understand any instrument written in any language other than Hausa.

b) How prevalent is pre-operative anxiety among Hausa-speaking Nigerian elective surgical patients?

1.3.2 Rationale for research question (b)

Prevalence is a degree of the burden of illness in a given population in a given place and at a particular time, as represented in a count of the number of affected people. Counting the number of people affected with an illness are necessary to appropriately plan for their health care needs Ward (2013). In this study, prevalence estimates are useful for clinical reasons as they provide context for diagnostic decision making and sorting preoperative patients into anxiety affected and unaffected groups (case ascertainment); and counting the number of high anxiety affected patients.

c) What non-pharmaceutical intervention for reducing pre-operative anxiety would Hausa-speaking surgical patients prefer prior to elective surgery?

1.3.3 Rationale for research Question (c)

The benefits of patient participation in treatment decision-making has been widely advocated by healthcare professionals and researcher involved in investigating treatment effectiveness and treatment outcome. It is the cardinal principle of patient cantered care. It has been reported that Involving patients in treatment decisions improve patients' satisfaction with the treatment and outcomes, foster cooperative clinical relationship between clinicians and patients and contribute in patients' adherence to interventions as patients feel the intervention was agreed upon mutually by themselves and the clinicians Mitchell et al. (2012). However, in cases of pre-operative anxiety, it is currently unknown whether clinicians provide patients with relevant information about the available alternative non-pharmaceutical preoperative anxiety reduction interventions and it is also not known whether clinicians consider are ready to consider their patients' preferences during pre-operative anxiety reduction

intervention sessions. Research question 3 of the present study is therefore set to find out elective surgical patients preference of non-pharmaceutical preoperative anxiety reduction interventions. (See Chapter 7 paragraphs 3 & 4).

Aims of the Study:

- To translate and validate the Amsterdam Pre-operative Anxiety and Information Scale (APAIS) into the Nigerian Hausa language.
- To administer the translated instrument to establish the prevalence of pre-operative anxiety among Hausa-speaking elective surgical patients.
- To determine the Hausa-speaking elective surgical patients' preferred non-pharmaceutical intervention to be used in reducing their pre-operative anxiety.

1.4 Objectives of the study:

- To engage professional translators to undertake the translation of the APAIS in to Nigerian Hausa language using the forward-backward translation method.
- Conduct cultural validation of the translated Hausa version of the scale on patients scheduled for surgical operation.
- To assess the prevalence of pre-operative anxiety among the Nigerian Hausa speaking elective surgical patients.
- To find out what factors are responsible for the Hausa speaking surgical patients' pre-operative anxiety.
- Find out the preferred non-pharmaceutical intervention for reducing Hausa speaking elective surgical patients' pre-operative anxiety.

1.5 Structure of the thesis:

Chapter 2 of this thesis presents the literature review. The chapter begins with the introduction, followed by a description of the search

strategy which includes keyword search and phrase search, critical appraisal and quality assessment and data synthesis.

A comprehensive literature review was undertaken to identify gaps which that formed the bases of the research questions, study aims and objectives. The literature review is therefore organised to present a systematic overview of relevant and related literature that provides information on and debates around preoperative anxiety. Other information derived from the literature review concerns issues and debates related to translation of health research measures and patients' preference of intervention. To uphold clarity and address each of the research questions, the literature review was organised and structured according to the following sub-headings-surgery, elective surgery and development of elective surgery; a general overview on anxiety, similarities and differences between fear and anxiety. There is also a section on pre-operative anxiety, followed by sources of pre-operative anxiety where the literature presents research findings on different sources of pre-operative anxiety, including the hospital as a source of anxiety, anxiety related to hospital-acquired infection, anxiety related to surgery and anxiety related to mortality. Other sections of the literature review focus on reducing pre-operative anxiety in which the two most widely used methods of reducing pre-operative anxiety (pharmacological and non-pharmacological) methods are reviewed. A summary section ends the literature review chapter.

Chapter 3 focuses on anxiety as a psychological disorder.

The rationale for the this chapter is to acquaint the reader with the different categories of anxiety disorders as a distinct class of psychological disorders, and to present readers with the fact reported in earlier studies that individuals with history of psychiatric problems such as anxiety disorders present with high preoperative anxiety when confronting surgical operation (see chapter 3, p 64). The chapter describes anxiety as psychological disorder– the different categories of anxiety disorders, the prevalence, risk factors and consequences of each category of anxiety disorder are presented.

Also, diagnostic criteria for each of the categories of anxiety disorder according to the American Psychological Association's Diagnostic and Statistical Manual of Mental Disorder-Fifth Edition (DSM-5) are presented. The chapter ends with a section summarising what is contained in the chapter.

Chapter 4 describes the general methodology of the research. The chapter begins with an introduction, followed by a section on ontology, epistemology and methodology of the study. This is followed by a description of mixed methods as the chosen method of conducting the research. Other sections of the chapter describe the sampling approach, participants used in the different phases of the study, study design, the procedure for collecting data for each phase of the study, recruitment of the participants, inclusion and exclusion criteria, as well as the description of ethical issues considered by the researcher.

Chapter 5 describes the process of translation and cultural adaptation of the Amsterdam Pre-operative Anxiety and Information Scale (APAIS) into the Hausa language. The chapter explains the rationale for the translation of the scale, the materials and method of translation used, and the process and procedure followed in the translation. This is followed by a description of the review of the translated version of the questionnaire by a panel of experts which consists of surgeons, anaesthetists, nurses and language experts. Next is a description of how the newly translated questionnaire was pilot tested, followed by the results of the pilot testing. The final section of the chapter presents information on the psychometric test run to determine the validity and reliability of the translated Hausa version of the questionnaire and a section concluding the chapter.

Chapter 6 presents the study on the prevalence of pre-operative anxiety in patients undergoing elective surgery. The chapter begins with an introduction followed by a literature review section. Next is the methodology section, which describes the participants, how the participants were selected, the inclusion and exclusion criteria, the instrument and the procedure for data collection. The next section of

the chapter presents the results of the prevalence of pre-operative anxiety. Here, summary tables are used to present the results. Bar charts were plotted to provide easy visualisation of the results. Each summary table and graph is followed by textual explanation. There is also a section containing the transcription of interview recordings from the participants, followed by a summary of the interview results condensed into categories and themes through thematic analysis. The chapter ends with a summary of the findings of the study on the prevalence of pre-operative anxiety among Hausa-speaking elective surgical patients.

Chapter 7 presents the study on Hausa-speaking surgical patients' preference of non-pharmaceutical pre-operative anxiety reduction interventions. The chapter begins by introducing the concept of preference of intervention. This is followed by a review of relevant and related literature on preference of interventions, barriers and enablers in obtaining patient treatment preference, relevance of patients' preference of intervention and methods of eliciting preference under which stated and revealed preference elicitation methods are discussed. The next section describes the method used in conducting the preference of intervention study. This begins with a description of the study design, how participants were recruited, and the data collection procedure under which the systematic ranking as a procedure for data collection and the rationale for using it are discussed. Next is a section on the results of the study where the major findings are presented. This is followed by the discussion section in which the findings of the study are discussed alongside what has been reported previously in the literature. A summary section ends the chapter.

2 CHAPTER TWO: LITERATURE REVIEW

2.1 **Introducti**on

A detailed and integrated literature review results in an initial general conceptualisation of the research problem or appraisal of an already-existing topic so as to understand better the phenomenon being investigated Rocco and Plakhotnik (2009).

In order to translate and validate APAIS, to administer the translated version to establish the prevalence of pre-operative anxiety and to determine the preferred non-pharmaceutical intervention for reducing pre-operative anxiety among the participants, a comprehensive search and mixed methods literature review was employed to address the questions and achieve the aims and objectives of the study. According to Grant and Booth (2009) mixed methods literature review combines more than one type of literature reviews where typically a systematic method is involved. However, mixed methods literature has not been classified as systematic because it is not necessary to include systematic methods. Mixed methods type of literature review aims to bring together quantitative as well as qualitative review data together. Wickremasinghe et al. (2015) stated that a mixed methods literature review offers a complete summary of the evidence in both quantitative and qualitative literature which underpins researchers and practitioners decisions. The mixed methods literature review provides a more wholistic picture of the entire body of research on a certain topic including multiple types of literature (both quantitative and qualitative) Grant and Booth (2009). On the other hand, as the mixed methods literature review seeks to combine the strengths of multiple types of literature reviewing, it also brings about methodological challenges of bringing these together, since there doesn't exist any consensus on how to do this (Grant & Booth (2009) Bringing together the literature found into a synthesis may also prove to be difficult as the quantitative studies might be structured very differently when compared to qualitative studies Grant & Booth (2009).

To conduct the face e literature review, the Search Appraisal Synthesis Analysis (SALSA) framework Booth et al. (2011) was employed. The SALSA framework consists of four interrelated steps. The ‘Search step’ of the framework entails a comprehensive literature search, searching for all relevant and related studies by means of a quantitative and/or qualitative search strategy or very thoroughly searching through different databases to reveal available literature on the study area. The ‘Appraisal step’ is about making use of a generic research appraisal instrument(s) or having separate appraisal process with corresponding checklists to use. In the current study, CASP tools for both qualitative and qualitative research have been used for quality appraisal of the studies included as the study employed mixed methods. The ‘Synthesis’ and ‘Analysis’ stages compare the identified literature with each other, scrutinising the quality of literatures by study design, data collection procedures, the use of appropriate sample and sampling techniques, methods of analysis and findings, relevance and other salient key features that are important to answer the research questions of the present study.

Articles included in the literature review have undergone the process of critical appraisal. Critical appraisal of article is a systematic process used to identify the strengths and weaknesses of a research articles in order to assess the usefulness and validity of research findings Young and Solomon (2009). Critical appraisal is therefore the use of guidelines of evidence to a study to evaluate the validity of the data, comprehensiveness of reporting, methods and procedures, conclusions and adherence to ethical standards. The rules of evidence vary with circumstances. Although the methodological standard for assessing the validity of a study differs according to design, some overall principles underpin the evaluation of any research study. The most important aspects of a critical appraisal are the assessment and evaluation of the suitability of the study design for the research question and a careful assessment of the relevant methodological features of this design Nadelson and Nadelson (2014). Other important factors consist of the appropriateness of the

statistical methods used and their consequent interpretation and the significance of the research to practice.

To conduct the critical appraisal of the retrieved articles for inclusion in the literature review, standardised critical appraisal skills programme (CASP) CASP Checklist (2013) tools were used, (see appendices 11 and 12 for CASP tools for quantitative and qualitative researches). The CASP tools are concise and resourcefully cover the important areas needed for critical evaluation of research evidence.

2.2 Literature search strategy

Based on the above research questions, aims and research objectives, the following search terms were developed to guide the literature search on relevant databases.

2.2.1 Keyword search

The key words searched are-anxiety, fear, surgery, operation, elective, pre-operative, pre-surgical, intervention, treatment, translation, validation, instrument, questionnaire, Amsterdam, information, scale, Nigeria, Hausa and language

2.2.2 Phrase search

The phrase search includes the following phrases- ‘pre-operative anxiety’, ‘pre-surgical anxiety’, ‘pre-operative fear’, ‘ambulatory surgery’, ‘elective surgery’, ‘pre-operative interventions’. Others include translation, ‘Cross-cultural adaptation’ ‘health research instruments’ ‘health questionnaire’, ‘preference of Intervention’, ‘patients choice of intervention for pre-operative anxiety’.

These keywords and search phrases were entered into the electronic database-ASSIA, Pub Med, MEDLINE, PsycINFO, and psychology and behavioural science collections on the EBSCO interface. The search terms were combined with OR & AND commands to produce related and relevant information containing those terms and or phrases. Other sources of information such as Google, Google Scholar and websites of specific organisations were also browsed to retrieve additional relevant studies and grey literature that could not be found on the electronic databases. Hand-searching of reference

lists of identified journal articles and books was also conducted to collect more relevant studies to include in the review. The search was limited to studies reported in the English language; conducted using human participants; not conducted with children as participants; and conducted within the time range 2007–2017. The review also included more recent studies published in the field

2.3 Review protocol for inclusion and exclusion of literature

For the purposes of the literature review in this study, the Population, Intervention, Comparators and Outcomes (PICO) framework has been used to guide the selection, inclusion and exclusion of the searched literature.

Table 1 Review protocol for inclusion and exclusion of literature

Population	Patients scheduled for elective surgery above the age of 18 years
Intervention	Pharmaceutical or non-pharmaceutical administered with the aim of reducing pre-operative anxiety in patients undergoing elective surgery.
Outcome	All outcomes are considered, provided the study meet the inclusion criteria
Study design	All research designs are considered- randomised controlled trials (RCTs), controlled before and after studies, surveys, interviews

The overall aim of the literature review chapter is to address the research questions, the study aims and objectives and to organise the review according to the following subheadings: surgery, elective surgery, development of elective surgery, pre-operative anxiety, causes of pre-operative, prevalence of pre-operative anxiety, effects of pre-operative anxiety, interventions used to treat/reduce pre-operative anxiety in patients undergoing elective surgery, translation of health instruments and patients' preference of intervention.

2.4 Literature review findings:

2.5 Defining Surgery

Surgery is a medical speciality that cures diseases and disorders by cutting, removing, changing or altering the body using operative procedures. Surgery is performed by surgeons, who are physicians with specialised training in surgical operations. It is a medical process used either to examine and mark or treat an individual's sickness, irregularity, deformity or malfunctioning body organ or wound. In some cases, surgical operation may involve the cutting or piercing of the individual's body tissues so as to identify and/or correct malfunctioning body conditions (Channel 2014). Surgery, as defined by the American Medical Association, is the therapy for illness, wound or other maladies through physical intervention, using different apparatuses to cut organs of the body or skin in order to repair it to a healthy state (American Medical Association 2013).

Surgery may also be performed to eliminate an obstruction, return structures to their normal position, or transplant tissue or a whole organ. Surgery may also be performed to insert mechanical or electronic devices; improve appearance; heal body parts that have been injured or affected by trauma, overuse or sickness; restore appropriate function; or decrease pain. Krummel (2006) defined surgery as an academic field that deals with the study of surgical techniques with a strong focus on concern and care for the ailing person.

Several factors are responsible for the need for surgery. Some surgical operations are performed to alleviate and prevent pain. Others are performed to decrease a symptom of a particular illness or improve the functioning of certain body organs or tissues. Some surgeries are done for examination purposes to investigate a problem, such as when doing a biopsy, which involves removing a section of tissue to study under a microscope. Some surgeries, like heart surgery, are performed to save the life of the individual (Department of Health 2014).

2.6 **Elective surgery**

Elective surgery is a non-emergency surgical operation in which the patient and the surgeon plan ahead by scheduling a time and date for the operation. Elective surgery could be medically obligatory or optional. Medically obligatory elective surgeries are performed to improve patients' health status and overall quality of life. Medically obligatory elective surgery is not critical but must be done because of the patient's current state of health or quality of life (Johar et al. 2013; Channel 2014). Conversely, elective non-obligatory medically elective surgery is performed to enhance the individual's physical and psychological wellbeing. The person elects to have the procedure, which may be helpful, but is not critical. An example of non-medically obligatory elective surgery is cosmetic surgery, which is performed to change a person's appearance, such as the appearance of the nose–rhinoplasty (Channel 2014).

The terms elective surgery, day-case surgery, short-stay surgery and ambulatory surgery are used interchangeably to refer to surgical operations that are planned ahead of time. With these types of surgery, patients are operated on and discharged on the same day. In the United Kingdom and Ireland, the meaning of elective surgery is very clear. The patients are to arrive at the hospital, have their surgery performed and be discharged all on the same day. The management of their condition in the hospital stops that same day (Association for preoperative practice 2008; Guo et al. 2012). In the USA, where the concept is called ambulatory surgery, patients are admitted to hospital, are operated on, and stay in the hospital for up to 23 hours. In contrast to the UK and Ireland, a patient spending 23 hours in hospital is regarded as having an all-night stay, and this is therefore not classified as elective or day-case surgery. In both cases, the principles of care remain the same: improving the quality of care and decreasing how long patients stay in hospital after the operation (Verma 2011).

In Western Australia, the term elective surgery is used to refer to non-emergency, medically necessary surgical operations, which can be

postponed for a period of at least 24 hours, and patients can be on the waiting list for at least two months before their scheduled time of operation. Based on this definition, any patient in need of an emergency surgical operation will not be placed on the list for elective surgery (Department of Health 2014).

The practice of elective surgery brings about some changes in overall surgical healthcare around the world. Many illnesses that were earlier cared for only in hospital wards on an inpatient basis are now beginning to be handled differently. With the advent of elective surgery, most uncomplicated surgical procedures are performed on patients who are discharged on the same day. With elective surgical procedures, patients come to hospital a few hours before their scheduled time of operation, are operated on, and are dressed and ready for discharge one or two hours after their surgery(Association for preoperative practice 2008).

Studies on patient satisfaction have revealed that a number of elective surgical patients preferred their treatment to be delivered on a day-case basis. It is regarded as the best service with less chance of interference with personal life, however, some patients reported experiences that indicated that there are issues with recuperation as well as unforeseen fears following the surgical operation (Mottram 2011).

2.7 **Development of elective surgery**

One of the most important contributing factors responsible for the changes in practice of surgical care is the recent advances in medical science and technology. This development has increased understanding of disease and ill health as well as methods of performing even complex surgical operations. Today, sophisticated apparatuses are used to perform different types of surgical operations. The technology has also resulted in high survival rates and minimal post-operative problems among patients. This has also increased the confidence of both patients and their families in the capabilities and competences of their doctors, surgeons and other members of surgical teams (Aziato and Adejumo 2014). With these

developments, more than 50% of surgeries are performed on an elective surgery basis in the UK (Association for preoperative practice 2008).

The UK's National Health Service (NHS) made a projection that elective surgery would cater for 75% of all surgical operations in the UK by the year 2010 (Association for preoperative practice 2008). The USA, Canada and the Scandinavian countries are at the forefront of making elective surgery the most used mode of surgical care. In Australia, it has been reported that 75% of surgical operations are currently carried out as day surgery (Mottram 2011). The developing countries are also beginning to popularise elective surgical services. For example, in India, the government is aiming to establish at least one day/elective surgery unit in all the major cities (Kumar et al. 2011). The situation has been similar in Nigeria since the beginning of the year 2000: many hospitals have been performing elective surgeries even though there are no free-standing units dedicated to elective surgery in most of these hospitals (Abdulkareem 2014). Currently, the majority of cases are addressed as elective surgery cases (Abdulkareem 2011). Patients are not admitted to the hospital unless there is strong evidence that an overnight stay is warranted and that it would be of great benefit to the patient. In such cases, a number of questions must be asked to find out if other options are available so that the patient can be treated as an outpatient (Kumar et al. 2011).

The second factor contributing to the changes in surgical care and the widespread acceptance of elective surgery is the developments in anaesthetic and pharmacological practices. Faster-acting anaesthetic drugs have been produced, allowing surgical operations to be conducted in shorter times and on patients who are entirely conscious and aware of what is happening (Mitchell 2013). Following these advances, the NHS reported that more than 50% of surgical cases in the UK are performed as elective surgeries (Association for Perioperative Practice 2008).

The third factor that has facilitated the change in surgical care and practice is the cost-efficient nature of elective surgery. Reduced operation times and the fact that patients do not need to stay in hospital before and after their surgery has caused patients, caregivers, hospital authorities and governments to embrace the practice of elective surgery (Association for preoperative practice 2008). The provision of care for patients in their respective homes and by their families has reduced the stress of being in a new environment and reduced the challenges of changes to their daily routines. Also, the risks of contracting hospital-based post-operative cross-infections are, equally, reduced (Guo et al. 2012). Hospital beds are freed up, thus giving staff greater opportunity to focus on patients with more acute and chronic medical or surgical conditions.

2.8 **Anxiety: a general overview**

Despite the frequent and widespread use of the term, anxiety is a psychological construct that is very difficult to define. The difficulty is related to how the term is used in different situations. The concept of anxiety is used interchangeably with other terms that have a similar meaning (Maddux and Winstead 2012). The problem in defining anxiety is caused by the overlap in usage of the terms ‘anxiety’, ‘fear’ and ‘stress’. This problem is found not only among laypeople, who use the terms casually, but also among professionals in the fields of medicine and other allied health professions.

Anxiety is an unwanted feeling occasionally experienced by many people. It is a term often used to describe feeling tensed, uptight, irritable or nervous, or the experience of dread. Anxiety is characterised and accompanied by feelings of worry as well as distressing physical and psychological symptoms. The Diagnostic and Statistical Manual of Mental Disorders 5th edition (DSM-5) has defined anxiety as an unpleasant subjective state of feeling terror in anticipation of the occurrence of a negative event in the form of imminent death (American Psychiatric Association 2013).

According to the American Psychiatric Association (2013), anxiety includes indiscriminate and blurred feelings of fear, apprehension and

uneasiness that emerge as an overreaction to circumstances subjectively perceived as threatening (American Psychiatric Association 2013). It has also been described as a normal emotional reaction to stressful life events that are responsible for behavioural, cognitive and physiological reactions (Starcevic et al. 2009). These stressful life events could emerge from the external environment through factors such as temperature, crowding and relationship difficulties with other people. Stressors could also originate in an individual's internal environment in the form of sensations of pain or other physical and psychological problems. Although anxiety is a common problem that most people occasionally experience, there are individual differences in how people experience and exhibit it. Some people experience anxiety more often than others and, because of its unpleasant nature, people often fear the uncomfortable experience it brings. For some people, the frequent worry and the distressing physical and psychological symptoms accompanying anxiety are indicators of debilitating health problems (Moodjuice 2015). Such fears cause the anxious individual to continue to experience feelings of anxiety, creating a vicious circle.

In recent years, there has been increased interest in conducting research on anxiety, which has culminated in the publication of a large volume of literature in the fields of medicine, nursing and psychology. Anxiety has therefore become an important and leading concept in nearly all medical and allied medical professions, and it is regarded as a common factor in the aetiology of diverse categories of illnesses such as insomnia and other worrying psychological or psychosomatic symptoms (Kring and Johnson 2013; Noggle and Dean 2013). Most current research on emotion has largely focused on the degree of fear or anxiety experienced by individuals. Part of the reason for this research interest in the extent of fear and anxiety is the roles they play in the aetiology and maintenance of a number of illnesses (Turk and Wilson 2010). This has caused feelings of anxiety to be viewed as a serious health problem by healthcare service providers (Spiegel et al. 2013).

2.9 **Fear and anxiety: similarities and differences**

The cause of fear is the awareness of events, objects or situations and the subjective evaluation of them as dangerous. Whenever an individual identifies situations, events or objects and regards them as capable of causing harm or threat, the result is experiencing fear (Kring and Johnson 2013). The individual may recall previous occasions, triggered by similar situations, in which the possible hazard was encountered (Amstadter 2008). The individual's handling skills and prior experience of how similar events were handled affect the degree to which the situation is evaluated and experienced as frightening. Therefore, a potential threat may be perceived as arousing fear when it is encountered for the first time but, if it is adequately appraised, processed, evaluated and resolved as non-frightening, subsequent encounters with such events are less likely or unlikely to evoke a high degree of fear (Ramsden 2013).

DSM-5 differentiates fear from anxiety. It describes fear as the emotional reaction to definite or perceived impending danger. In contrast, anxiety is the anticipation of an upcoming threatening event or situation. DSM-5, however, acknowledges the overlapping nature of the two terms and concludes that their difference lies in the fact that fear is more generally connected with bursts of autonomic arousal needed for the 'fight or flight' response. Conversely, anxiety is more related to tension of the muscles, hypervigilance and frequent scanning of the environment in readiness for the occurrence of a perceived negative event (American Psychiatric Association 2013).

Despite the reported evidence that anxiety is adaptive at low and moderate levels, it is abnormal if it becomes highly disproportionate to the degree of danger being confronted and therefore interferes with the individual's ability to effectively function in the environment.

2.10 **Summary**

Anxiety is an inordinate feeling of apprehension and tension accompanied by physical and psychological symptoms. Many people

experience anxiety periodically depending on the cause. The terms anxiety and fear are used interchangeably even by healthcare professionals. Their difference relates to what triggers the feelings. While fear is frequently associated with physical threat, anxiety is more often related to the perception of an upcoming negative event. Whatever the cause may be, anxiety affects the individual's ability to function effectively.

2.11 **Pre-operative anxiety**

Most patients planned for elective surgery experience anxiety pre-operatively. The anxiety begins the moment patients are diagnosed with an illness that calls for surgical operation. The anxiety continues to build as the surgical operation is planned and intensify until the operation is finally carried out (Mohd et al. 2015). The experience of pre-operative anxiety varies across patients. The factors responsible for pre-operative anxiety and the extent to which pre-operative anxiety is manifested also vary. Jawaid et al. (2008) reported that factors such as patients' age and gender and the nature, extent and type of the operation to be carried out, as well as past experience of surgical operation, are predisposing factors for pre-operative anxiety.

Ebirim and Tobin (2011) conducted a study of the factors responsible for pre-operative anxiety among elective surgical patients. A total of 125 adult patients were administered a 17-item questionnaire by the same anaesthetist. The questionnaire was designed to enable patients to indicate the factors responsible for their pre-operative anxiety. Their levels of anxieties were measured by the visual analogue scale (VAS). Different factors were reported. Most patients (69.6%) reported concerns about postponement of the surgery, fear of surgical mistakes (64%), not receiving the required attention from caregivers (63%) and not waking up from the operation (58%). The patients' pre-operative anxiety scores indicated age and gender difference in anxiety among the participants. Female patients appeared to be more anxious than males. Older patients (25–34) were statistically significantly more anxious than younger ones (15–24). No statistically significant anxiety was found in patients aged 35

and older. However, there is some inconsistency in the methodology used in the study. Ebirim and Tobin (2011) not only used adult patients undergoing elective surgery in the study but also used children of 15 years of age. The study did not indicate how participants were selected. Also, the questionnaire used to discover the factors responsible for patients' pre-operative anxiety was not adequately described. No statement was made as to how the questionnaire was developed or how it was pilot-tested or on what type of patients. There was no mention of the reliability index of the questionnaire. Nor did the authors state how the questionnaire was scored or how it was interpreted. The study failed to acknowledge the relevance of these factors and this therefore reduces the quality of the findings.

Akinsulore et al. (2015b) assessed pre-and post-operative anxiety among elective major surgery patients. The study used 51 adult patients arranged for elective surgery in a tertiary hospital in Nigeria. A convenience sampling approach was used to select ASA I and II patients in the anaesthesiology department. After obtaining their written informed consent, the participants were evaluated one day earlier and one day after their booked surgical operation using the state version of the State-Trait Anxiety Inventory (STAI-S). Factors responsible for the participants' anxiety were selected from a list provided by the researchers. The findings revealed that 26 patients (51.0%) had exhibited significantly high pre-operative anxiety, whereas eight (15.7%) presented with significantly high post-operative anxiety. The results further found that fear of post-operative complications and outcome of the operation were the greatest factors accountable for pre-operative anxiety, while a small number of patients were anxious about being pricked with a needle and surgical errors through nurses' or doctors' mistakes. The study by (Akinsulore et al. 2015a) is limited in that it was a study conducted in a single centre and therefore it would be difficult to make generalisations of the findings on all elective surgical patients in Nigeria. Also, the factors responsible for pre-operative anxiety were written by the researchers for the participants to choose from. The authors may not

capture in their list all the factors of pre-operative anxiety as people may have different anxiety triggers. The study would have been more robust if these factors were taken into consideration.

Uzun et al. (2008) designed a cross-sectional study involving 88 patients to examine the issues that are linked to high anxiety in patients before undergoing elective coronary angiography. Participants filled in a data collection form to provide information about their demographic variables and health history as well as angiography. The level of state and trait anxiety was evaluated using Spielberger's STAI. Multivariate analysis was computed to reveal the independency of the relationship between state anxiety and other factors. Uzun et al. (2008) found moderate levels of both state and trait anxiety in their participants. A significant relationship was found between state and trait anxiety levels among the study participants ($r=0.56$, $p < 0.001$). In all the factors investigated, only trait anxiety ($p < 0.001$) and waiting time (p 0.020) were identified as independent. The study is limited in many ways. Lack of stating the mode of selection of the participants would make replication of the study a problem. Also, the participants were initially diagnosed as having heart disease, a situation that would make them more anxious when confronting surgery. The study would have been more relevant if patients with less life threatening illnesses were used as participants.

Jawaid et al. (2008) conducted research to assess the level of pre-operative anxiety and the factors that are responsible for it among patients admitted for elective surgery. Selected to participate in the study were 193 patients (109 male and 84 female). The patients' levels of anxiety were measured by the Visual Analogue Scale. Participants were also asked to indicate the different factors responsible for their pre-operative anxiety from a list provided by the researchers. The results show that patients feared the operation more than the anaesthesia. Fear of complications and lack of adequate information regarding the surgery was found in 32% of the patients, which is the major finding of the study. Other factors including pain after the operation, not being asleep during the surgery, waiting for

the operation, fear of injection and not recovering from anaesthesia were reported by the majority of patients. The study has a number of methodological flaws. Jawaid et al. (2008) did not provide reasons for the unequal number of male and female participants used in the study. There is also wide variation in terms of the type of anaesthesia administered to the patients: 129 patients received general anaesthesia while only 64 patients received spinal anaesthesia. The study would have been more relevant if the researchers have taken the above limiting factors into consideration.

Gangadharan et al. (2014) conducted research to evaluate elective surgical patients' pre-operative anxiety in Saudi Arabia. Using a convenience sample of 20 patients aged 20 to 60 years, Spiel Berger's State Trait Anxiety Inventory (STAI) was administered to measure the participants' anxiety levels. The results of the study revealed that most of the patients (60%) reported high anxiety; 30% reported moderate anxiety; and 10% reported low anxiety prior to their surgical operation. The research also presented a pattern of anxiety according to the patients' age grouping: 20% of patients aged 20–29 and 40–50 presented with high pre-operative anxiety and15% of patients aged 30–39 presented with high anxiety. The study is limited in a number of ways. The number of participants used in the research was too small, therefore affecting the generalizability of the findings. Most of the study participants were reported to have had prior experience of surgical operations; this could also affect the validity of the findings.

Jafar and Khan (2009) studied the frequency of pre-operative anxiety in Pakistani surgical patients. The convenience sampling method was used to enrol 300 surgical patients aged 16-80 years scheduled to undergo a range of elective surgeries. Being on anxiolytic medication, inability to understand English and Urdu, and past history of psychiatric illness were set as criteria for exclusion. The study results revealed that 62% of the total participants were significantly anxious pre-operatively. One striking finding of this study is that participants with higher levels of education appeared to have higher anxiety.

Patients with high-school or lower levels of education were less anxious than patients who had completed intermediate education. The highest frequency of pre-operative anxiety was noticed among patients who had postgraduate education. The study also found that female surgical patients were more anxious than male patients. After analysing the combined effects of previous surgical operation and visits to pre-operative assessment clinics, 92% of the patients showed significant pre-operative anxiety, as opposed to 42% of patients who had had previous surgical operations but had not visited the pre-operative assessment clinic for the current surgery. A limitation of this study was the case mix of the patients. The authors included surgical cases that are more complex and naturally anxiety-provoking with less complex surgical cases. This may affect the results of the study and make generalization a problem. Another weakness is that the author did not give a description of how the study participants were recruited. The fact that more males than female participants were used could also limit the quality of the results. A much more empirical approach would adequately describe the selection procedure and ensure gender balance so as allow for replication of the study, should there be a need.

Matthias and Samarasekera (2012) undertook research to find out the prevalence of and factors responsible for pre-operative anxiety among Sri Lankan surgical patients. The APAIS and the VAS were administered to100 patients of 18 years and above. The results of the study revealed that, considering APAIS scores of 11 or more as indicating high anxiety, 76.7% of participants were found to be highly anxious pre-operatively. The study also reported that awareness during anaesthesia, postoperative pain, waiting for the operation and being under the care of medical staff were the major causes of pre-operative anxiety. More females were reported to be significantly anxious than males in this study. The study has some identified shortcomings, the major one being the use of more females (64) than males (36). This could be the reason why females appeared to be more anxious than male patients. Another limitation of the study is the use of the VAS instrument to measure the factors responsible for pre-

operative anxiety. The VAS was not originally developed and standardized as a measure of factors responsible for pre-operative anxiety. Using it for this purpose in a study could cast some doubt on its findings.

Haugen et al. (2009a) conducted a study to establish the frequency of intraoperative anxiety, the effect of environmental influences on intraoperative anxiety and to see if there is a relationship between intraoperative anxiety and generalised anxiety and depression. The study consisted of 119 samples and comprised patients going through elective surgery and those scheduled for emergency surgical operations within 24 hours of their admission. The assessment of anxiety was made using Jakobsen's questionnaire as well as the Hospital Anxiety and Depression Scale. The findings revealed that 23% of the participants were anxious on entrance to the operating theatre, 35% were also anxious during the induction of anaesthesia, whereas 12% of the participants felt very anxious after the induction of anaesthesia. The analysis further revealed that, at the start of the operation, 15% of the participants were significantly anxious, whereas 9% were anxious when the surgery was performed. The study found that provision of continuous information to patients reduced anxiety in 49% of the patients. Fifty-five per cent of the patients who were given the opportunity to ask questions intraoperatively had their anxiety significantly reduced. Seeing the technical equipment in the operating theatre and the hearing the sound of surgical instruments was reported as a source of increased anxiety in 9% and 6% of the study population, respectively. A higher level of general anxiety and depression was found to be highly associated with higher levels of intraoperative anxiety in the study sample. The study has a number of limitations. First, the sample was drawn from a heterogeneous surgical population with different surgical conditions. The heterogeneity of the study population affects the internal validity. The study also required participants to recall their intraoperative experiences, which might be affected by many factors, including the anaesthetic drugs which affect memory and recall. These limitations might reduce the quality of the findings.

Ylinen et al. (2009) evaluated anxiety in patients before undergoing colonoscopy and identified if correlations exist between patients' anxiety, previous pain experience, non-drug treatment and pain severity during colonoscopy. A cross-sectional research design was used to collect data. State-Trait Anxiety Inventory (STAI) and a questionnaire designed for the purpose of this study were used to collect data. One hundred and thirty patients filled in the STAI before their colonoscopy and completed the designed questionnaire after the procedure. The results revealed that the majority of the patients had suffered from pain which they reported as tolerable. Anxiety is recorded more in women than in men prior to colonoscopy and women experienced more pain and discomfort than male. Patients who had experienced pain previously and those with high state anxiety levels had decreased perceptions of colonoscopy. Also, non-drug interventions, like peaceful talk, clarification of the reason why pain is experienced and guidance assisted both anxious and non-anxious patients to reduce their experience of pain. The study has a number of limitations. One, the invasive nature of the procedure might affect the patients' circumstances of completing the research questionnaires and may have also moved the respondents' focus and affected the quality of the answers they give. Two, the questionnaire designed by the researchers themselves, for the purpose of this study, will affect the quality of the findings as the questionnaire might have some elements of bias in its design.

Kagan I. Bar-Tal (2008) examined the influence of pre-operative anxiety and uncertainty on short-term physical and mental recovery following elective arthroplasty. A quasi experimental design was conducted using 87 patients admitted for elective arthroplasty. The outcome assessment measures used are the Michel Uncertainty in Illness Scale (MUIS), modified for orthopaedic surgery. The state version of Spielberger's State-Trait Anxiety Inventory (STAI-S) was used to measure pre-operative anxiety. Post-operative wellbeing was assessed with a Self-Anchoring Scale, a single-item subjective wellbeing assessment tool; post-operative symptoms and complications intensity were evaluated by a twelve-item scale

developed by the authors specifically for this study, containing a list of post-operative symptoms and arthroplasty related complications. The findings reveal that pre-operative uncertainty and pre-operative anxiety negatively affected the wellbeing, physical symptoms and mental health of the participants post-operatively. The limitation of the study is concerned with the use of many data collection instruments which may affect the responses of the participants.

2.12 **Sources of pre-operative anxiety**

Pre-operative anxiety and other related emotional problems are difficult experiences in patients undergoing elective surgery. There are different factors responsible for pre-operative anxiety. According to some studies, even though there are universal sources of pre-operative anxiety, other factors are specific to the individual surgical patients. Generally, the fear of the operation and pain following surgery are reported by almost all surgical patients. The specific factors for pre-operative anxiety arise as a result of the individual's experiences, personality and coping resources among others. Given the fact that most patients did not know what would happen in a real surgical situation, they got to know about the surgery after being diagnosed with an illness that requires surgical operation; it is natural to become anxious before the operation. At this time patients become overwhelmed by fear of many things, such as the fear of anaesthesia, pain and the surgery itself which many have associated with death. The following section of the literature explores what have been documented as the sources of pre-operative anxiety in patients undergoing elective surgery.

2.12.1 The Hospital environment

The fear of the hospital environment is common among most patients visiting hospitals, even for cases that do not require a surgical operation. For patients scheduled for surgical operation, the experience of a high degree of fear and anxiety is as a result of the fear that they are going to be operated on. Patients' fears of hospital vary in terms of severity depending on the nature of their illness and other associated factors, such as the individual coping mechanisms.

According to (Kadens 2015), hospital anxiety, as it is medically called, is brought about by many factors including the patients' previous experience with hospitalisation; the experience of and reports from family members or friends; or at times simply from media reports, which mostly report on negative events instead of positive outcomes. In one review of academic literature, (Sweeney 2015) reported that a single traumatic event that occurred in a hospital is sufficient to be a reason to cause hospital anxiety. The hospital is a real reminder that sends signals that humans have a short life and each individual dies at a point in time. This can be a frightening situation for some people. Information about the death of someone close, receiving diagnosis of a deadly illness of oneself or a relative might have happened in the hospital and could have been so traumatic to the patients with hospital anxiety. This then becomes a conditioned response occurring over and over each time the patient has anything to do with a hospital.

The fear of hospitals could also be connected to more straightforward issues. Hospitals usually have a particular kind of antiseptic odour; there are bedpans, hospital clothes and sick patients around as roommates. The patient is entirely at the mercy of nurses and doctors. Some may feel degraded or undignified in the hospital as a result of their interaction with rude doctors or nurses. For some people such lack of control of the situation may reinforce and heighten their fear of hospitals. Other sources of hospital anxiety are the news, mass media reports or films about hospital casualties. Such media reports are also likely to lead to the development of hospital anxiety. According to (Sweeney 2015), such anxiety is not completely without origin. Medical errors are found almost everywhere in the world and have almost become fairly routine occurrences. Even more developed countries are found to have mistakenly administered wrong treatments or performed wrong procedures in spite of their advancements in medical practice. Thus, individuals with already existing phobia can easily develop hospital anxiety as a result of such negative reports.

Nigussie et al. (2014) carried out structured interviews with hospitalised surgical patients to find out the causes of their pre-operative anxiety. Results of the review indicate that hospitalised patients' fear characteristically rotates around two major issues: a loss of control of the situation and depersonalisation. The study concluded that the hospital being where treatment is provided and cure is expected is also one place where a patient loses control over what he/she normally performs. On admission, the hospital imposes limits on the patients' personal freedom, movement and choices, and even what patients eat is dictated by the hospital. These restrictions can lead to a feeling of uncertainty, shame and helplessness which may eventually lead to the feelings of insecurity and serious psychological discomfort.

2.12.2 Anxiety related to hospital acquired infections

Another factor accountable for hospital anxiety is that hospitals are places that are well known for breeding and containing germs, bacteria, viruses and other disease-causing agents. In hospitals, sick people may be coughing, sneezing or sometimes even vomiting. People that are mysophobic, that is, people who

have the extreme fear of germs or contracting infectious diseases, are more susceptible to develop a fear of hospitals. Many patients scheduled for surgical operation reported fear of contracting infections in the hospital as their source of anxiety. A nosocomial infection, as it is technically called, is infection contracted as a result of contagion or an infectious agent that exists in a certain place, such as a hospital. Hospital acquired infections are greatly linked with a higher rate of morbidity and mortality as well as the high cost of medication. According to Mercola May (2014), one in every ten people who visit a hospital contracts hospital acquired infection. In the USA, the Centre for Disease Control (CDC) reported that approximately 400,000 injurious or fatal mistakes take place every day in US hospitals and that these hospitals have turned out to be very famous for spreading deadly infections. Reporting the high

incidence and the effects of hospital acquired infections, Mercola May (2014) stated that:

> *"In 2011, an estimated seven hundred and twenty two thousand (722,000) patients contracted an infection during a stay in an acute care hospital in the US; two hundred and five (205) Americans die from hospital-acquired infections each and every day. Some hospitals are far riskier than others. A previous analysis of 40 million Medicare patients' records from 2007 through 2009 found that one in nine patients developed a hospital-acquired infection. According to this report, more than one hundred and sixty four thousand four hundred and seventy (164,470) hospital-based complications could possibly have been avoided had all recipients of Medicare from 2008 through 2010 gone to top rated hospitals for their procedure".*

Jolley (2008) conducted a study to assess patients' anxiety and knowledge about MRSA infection. MRSA is an acronym which stands for Meticillin Resistant Staphylococcus Aureus. The study was carried out as a result of nurses' observations of a significant increase in the number of patients presenting with fears of being infected with MRSA while in hospital. One hundred women attending a gynaecology pre-admission session at Queens Medical Clinic were surveyed to identify the basis of their knowledge of anxieties about MRSA before they were admitted for surgery. The participants were administered a questionnaire to find out what their concerns about MRSA were. The first six items of the questionnaire probed whether the participants had heard about MRSA, where they got information about it, whether they had known someone who had contracted the disease, whether they were afraid of catching it and how worried they were about being infected with MRSA compared to surgical operation. Another two questions required patients to state how MRSA is contracted and what happens if people get infected with the disease. The study results show that patients' main sources of information about MRSA were television and newspapers. However, a slightly less than 50% sample (n=41) reported knowing someone

who had previously been infected with the disease. Seventy four (74) of the study participants were worried about being infected with it and have reported that they were more anxious about MRSA than the post-operative pain, the anaesthetic or the surgical operation. The participants also mentioned dirty hospital environment, poor hygiene and lack of hand washing as major risk factors of the spread of the disease. As regards to what happens if people contract MRSA, 47% of the participants reported death as the consequence, while 37% said that the patient would become very ill. Only 10% of the patients reported the possibility of recovery from the disease after contraction (Jolley 2008).This study is, however, limited in that the questionnaire used by the researcher to assess patients' knowledge and fear about MRSA was developed purposely for the study, no reports on validity and reliability of the questionnaire was provided. Also the study consists of only female participants. The study would have been more relevant if the version of fear of contracting MRSA had been obtained from male patients. These factors reduced the quality of the findings.

2.12.3 Anxiety related to surgery

Anxiety related to surgery or surgical anxiety is a psychological problem in which a patient's fear of the surgical operation is so significant that it can lead to the development of physical symptoms such as increased heartbeat, nausea and vomiting, and chest pain. Another name for anxiety is related to surgery –tomophobia. Schmid et al. (2009) defined tomophobia as the phobic anxiety produced by extreme fear of invasive medical procedure or medical intervention. However, many patients have their first experience when they are about to undergo surgical operation; reasons for surgical anxiety differ greatly according to the individual patients' circumstances and they range from an extreme fear of the unknown to having a negative experience with previous surgeries. Davis-Evans (2013) reported that, when patients worry a lot about their impending surgical operations, and their anxiety becomes very severe, it results in a panic attack (Davis-Evans 2013). A panic attack is a class of phobic anxiety disorder that is characterised by overpowering episodes of

fear accompanied by physical manifestations, such as heart trembles, sweating and dizziness.

Excessive fear of surgery or surgical anxiety is a condition that mostly comorbid with specific phobias. Specific phobias are irrational fears related to specific objects or situations. Patients with specific phobia exhibit continual fear and they understand that the fear is precipitated by specific objects, events or situations (LeBeau et al. 2010; Ollendick et al. 2010; Maddux and Winstead 2012). They display intense fear reactions similar to panic attacks when they immediately come in contact with the object of their phobia. They also experience intense feelings of anxiety by simply presuming that they are coming in contact with the event, object or the situation that causes their phobia. They make greater efforts to avoid the encounter because the phobic response is unpleasant and is followed by unrealistic thoughts that terrible things are likely to happen (American Psychiatric Association 2013). If, for whatever reason, they come in contact with the object or situation of their phobia, they become anxious and their anxiety progresses from mild to severe feelings of apprehension and even distress. Their phobic behaviour gets reinforced by their avoidance of the situation because whenever they avoid it, their anxiety reduces–a situation that will make them avoid it again in the future (Butcher et al. 2014) The DSM-5 classified specific phobias into four major subgroups: animal-type phobias, situational type phobias, natural environment-type phobias and blood-injection-injury type phobias. The last category of specific phobia is the one commonly found with patients undergoing surgical operation and therefore will be discussed briefly hereunder.

2.12.4 Blood-injection-injury type phobias:

People with the blood-injection-injury type of phobic disorder are irrationally afraid of coming into contact with blood or injury. One notable feature of this disorder is that, unlike people with other types of phobias, coming into contact with their phobic objects or situations triggers the ‘fight or flight’ response (such as increased heart rate and blood pressure). People with blood-injection-injury type of specific

phobia experience the opposite. Their heart rate and blood pressure significantly drop and they often have a higher tendency of vasovagal fainting (near fainting), than patients with other types of specific phobias (LeBeau et al. 2010; American Psychiatric Association 2013; Nolen-Hoeksema 2014).

Some surgical patients' heightened anxiety can be caused by fear of the outcome of the surgery; alteration in the physical appearance of the body, as in the case of mastectomy in female surgical patients or prostate surgery for male patients in which the patient faces the risk of losing their sexual function. Such surgical operations cause low self-esteem in the patients. Therefore, continuous worry about the outcome of such surgery induces the feeling of apprehension which consequently progresses to the feeling of anxiety.

2.12.5 Fear of anaesthesia

Anaesthesia and its relative complications is a major source of anxiety in many patients awaiting surgical operation. Yet, most surgical procedures could not be performed without anaesthetic agents administered. Anaesthetic techniques are used to induce a temporary state that blocks sensational feeling in persons undergoing a medical or surgical procedure. The techniques may be applied to the whole body– a condition referred to as general anaesthesia– or applied to some parts of the body– often referred to as regional anaesthesia –or a specific location in the body, known as local anaesthesia. Both techniques involve the use of drugs administered to induce a state that inhibits the transmission of nerve signals leading to reduction of or completely blocking sensations. Apart from blocking or reducing sensations, anaesthesia is administered to reduce intense pain before or after medical or surgical procedures (American society of anaesthetists 2016).

Anaesthesia is provided by trained specialists, whose responsibilities include general assessment of patients before and after medical or surgical procedures, planning for the care of the patients before and after the anaesthetic technique, as well as monitoring and supervising the care of the patients after the planned procedure.

The advances in anaesthetic science and technology in recent years have made anaesthetic techniques safer than ever before. For example, the anaesthetic technique used in the 1940s involves the administration of a single drug (ether or chlorophorm). Inhalation of these drugs induces an unpleasant feeling and sensation of choking. Because only a single anaesthetic agent is administered, patients have to be given higher doses to achieve the desired effect (American society of anaesthetists 2016). In the 1940s, it has been reported that, in every one million surgical operations performed under full anaesthesia, 640 patients died (Fischer 2011). However, after the 1940s, more rapid-acting anaesthetic agents were introduced; patients were given a variety of anaesthetic drugs which tend to be absorbed less by the body's fat making shorter duration of action than the older ones. In recent years, muscle relaxant medications are administered to patients such that the surgeons can perform an operation without the patient being aware of what is going on. With the introduction of muscle relaxants, surgical patients do not necessarily have to be given large doses of anaesthetic medications nor be so deeply anaesthetised, thus reducing the adverse effects of anaesthesia. With this development, the safety of anaesthesia has been dramatically increased such that, by the end of the 1980s, following the safety standards and enhanced medical and training in anaesthetic techniques, the incidence of fatalities associated with anaesthesia has been reduced to four for each one million surgical operations (Fischer 2011); this development is only in the developed countries. The total mortality and morbidity associated with anaesthesia in developing nations still remain unchanged and avoidable risk factors create the largest burden (Bharati et al. 2014). Numerous causal factors, such as human and technical resources, education and/or teaching resources, need added attention in developing countries.

Despite the evidence showing that anaesthesia is safe, many surgical patients maintain a high degree of fear associated with anaesthesia. Patients' fear of anaesthesia is commonly attributed to side effects of the anaesthetic drugs. According to NHS UK, most anaesthetic side

effects occur immediately after the operation has been completed and do not last for a long period of time. The most common possible side effects are post-operative nausea and vomiting, shivering and feeling very cold, memory loss and confusion, dizziness, headaches, twitching muscles, numbness and sore throat, as well as bruising and soreness which usually develop in the site of injection. Research has also shown that there are reported cases of complications following the administration of anaesthetic drugs. These include allergic reaction to the anaesthetic agents, breathing difficulties, waking up during the operation and, in very rare cases, death (NHS 2015).

Mavridou et al. (2013) studied patients' anxiety and fear of anaesthesia in 400 surgical patients. Analysis of the data reveals that 95.5% of the study patients wished to meet with their various anaesthesiologists before their surgery. Eighty one percent expressed a high degree of fear about anaesthesia. Of this number, 83.3% were female as opposed to 75.7% of men. Patients below the age of 45 fear waking up during surgery than those over 45 years; patients undergoing anaesthesia for the first time are more afraid than those with previous experience of anaesthesia, they fear disclosing personal problems because of anaesthesia and are afraid of improper post-operative care. In general (Mavridou et al. 2013) found that their patients expressed fear of unsuccessful anaesthesia, fear of the anaesthesiologist not being qualified enough or not being attentive to them intra-operatively, fear of post-operative pain, permanent paralysis as a result of anaesthesia, nausea and vomiting, being too sleepy and having impaired judgement post-operatively. A significant number of patients (64.8%) expressed fear of death associated with anaesthesia in this study (Mavridou et al. 2013).This study is not without limitations; the main one being the use of an unstandardised questionnaire to assess patients' fear of anaesthesia. This will pose problems of replication of the study by other researchers. Another limitation is the use of patients with and without prior experience of anaesthesia in the same study. The study would have been more relevant if one category of patients was used.

In another study, (Burkle et al. 2014) conducted a survey of the fear of anaesthesia complications in relation to surgical type and to assess the potential impact on informed consent for anaesthesia. One thousand survey questionnaires were administered to surgical patients who volunteered to participate in the study. Sixteen participants did not return their questionnaires and therefore an 89% (984) response rate was achieved. A list of five potential complications associated with anaesthesia was given to the respondents. The list included: fear of death, heart attack, stroke, nerve injury, and nausea and vomiting. To determine the type of fear expressed by the participants, the researchers requested them to stratify and rank order their fear of possible anaesthesia-related complications on a 5-point ranking ranging from the least feared complication to the highest. In addition, participants were also requested to stratify their fears of complication in relation to undergoing minor, moderate or major surgery. To help participants understand better the risks of having anaesthesia complications, (Burkle et al. 2014) provided each participant with a table containing a common life experience of incidence of anaesthesia complications so as to enable the participants to respond appropriately to the survey questions. The results of the study indicated that death was the major object of fear among the study participants. Fear of death was expressed by the majority of young participants and college graduates. Sex and timing of the surgery were not related to the most common risk factor. There was a statistically significant difference between age and fear of peripheral nerve injury, stroke, post-operative nausea and vomiting. A statistically significant difference was also found between levels of education and all the five listed anaesthesia-related risk factors. Gender was not, however, significantly different for any of the five risk factors. The study by (Burkle et al. 2014) is limited in a number of ways. First, the study is a single centre study which may not take into account the ethnic diversity of the entire population of the USA. Second, some of the participants used in the research have had previous experience of anaesthesia and surgical operation. This will also be a factor that may

reduce the fears and anxiety in those patients with previous experience of anaesthesia and surgery. Third, the questionnaire used in collecting data for the study was administered pre-operatively without a post-operative follow-up and the authors did not state why they selected the items included in the instrument. A statement of the rationale for item selection and inclusion would enrich the quality of the instrument, given the fact that it is not a standardised one.

Elmore et al. (2014) also conducted a study to find out whether patients fear undergoing general anaesthesia for oral surgery. A 14-item questionnaire was administered to 100 patients planned to undergo oral surgical procedure under general anaesthesia. Ninety-four questionnaires were returned completed by 31 males and 63 females. The age of the participants ranged from 16 to 76 years. The analysis of the participants' responses revealed that 59 patients (63%) were not afraid of general anaesthesia while 35 (37%) were anxious about general anaesthesia. Fifty percent of the patients unafraid of general anaesthesia had had prior experience of anaesthesia and surgery; while only 30% (ten participants) of those afraid of anaesthesia had prior experience of anaesthesia/surgery in their life. Responses to the question regarding reasons for fear of anaesthesia revealed that nine participants from the fearful group indicated 'not waking up', six patients selected 'waking up during the procedure', 11 'fear of pain', while nine selected 'other factors', such as fear of allergic reaction, failure of the anaesthetic etc. A significant number (69%) of patients who reported anxiety related to general anaesthesia for oral surgery were women. The limitation of the study was about the methodology. The selection of participants used in the study may lead to questions of bias. There are more female than male participants in the study. Also, there are more patients with previous history of surgery and anaesthesia used in the study. The study would have been more relevant if these factors were taken into consideration.

Mitchell (2012) studied the influence of gender and anaesthesia type on day surgery anxiety. A convenience sample of 1,606 patients

undergoing day surgery was given to fill in and return the questionnaire 24–48 hours after their operation. However, only 674 (41.9%) questionnaires were returned. The age range of the participants was 17–75 years; there were more female (385) than male (287) participants. Among the research participants, 62.8% of the participants were to undergo general anaesthesia, while 31.2% would be operated under local anaesthesia. A high proportion of the patients (83%) had previous history of general anaesthesia while 58% experienced local anaesthesia. The results were analysed using SPSS for preliminary examination utilising a descriptive statistical technique and multivariate analysis of variance (MANOVA) test for between group comparisons. A high proportion of the participants (82.4%) were highly anxious on the day of their surgery. Anxiety was attributed to factors such as waiting for the surgery, pain, fear of anaesthesia, fear of the unknown and the surgery. Mitchell (2012) found that patients operated on under general anaesthesia had statistically significant anxiety than those operated on under local anaesthesia. The desire for more information was also high in the general anaesthesia group of participants compared to those under local anaesthesia. On anxiety and gender, (Mitchell 2012) identified differences concerning two issues: ‘waiting for’ and ‘approaching surgery’. Female patients were statistically significantly more anxious than male patients, and their anxiety began earlier compared to their male counterparts. The limitation of the study is related to the study population. More female patients were surveyed than male. Also, there were more patients with previous history of general anaesthesia than those with history of local anaesthesia; even though the study found that, prior experience of anaesthesia was not related to anxiety levels in the participants.

Lee et al. (2016) investigated pre-operative anxiety about spinal surgery under general anaesthesia. A total of 157 patients planned to undergo laminectomy for lumber stenosis or discectomy for herniated nucleus pulposus under general anaesthesia were selected. A visual analogue scale (VAS) was used to assess anxiety. A questionnaire designed by the authors asking about spinal surgery and anxiety

about spinal surgery was also used. The questions about anxiety related to spinal surgery covered topics such as presence or absence of pre-operative anxiety, major cause of pre-operative anxiety, important factors for decreasing pre-operative anxiety and the time when anxiety was very high. SPSS software version 12.0 was used to analyse the results. A paired t test was calculated for comparison of mean score for anxiety related to spinal surgery and general anaesthesia. Multiple regression analysis was performed to analyse the patient factors that impacted on pre-operative anxiety related to general anaesthesia. The results of the study indicated that 87% of participants were anxious pre-operatively, either because of spinal surgery, general anaesthesia or both. The main factor for pre-operative anxiety was fear of spinal surgery (74%) followed by fear of general anaesthesia (26%). However, univariate analysis according to age revealed that anxiety levels related to general anaesthesia were higher in elderly patients compared to younger patients. Waiting period produced a higher incidence of anxiety in the patients of this study. There is also a significant difference in anxiety according to gender with female patients exhibiting higher anxiety than their male counterparts. The study by Lee et al. (2016) is not without limitations. First, the use of an invalidated self-report measure of anxiety will cast doubt on the reliability of the findings. Another weakness is that patients' anxiety related to either anaesthesia or spinal surgery has not been categorised to indicate the levels of experienced anxiety of the participants. A much more systematic approach would categorise the patients' levels of anxiety into low, moderate and high.

2.12.6 Anxiety related to mortality

Studies of patients undergoing surgery have established that extreme levels of pre-operative anxiety are associated with hospital admission and fear of death or death anxiety. Death anxiety is the abnormal feeling of incessant fear of one's end of life. Death anxiety has been explained as a "feeling of dread, apprehension or solicitude associated with thoughts of the course of dying, or ceasing to be". Among surgical patients, fear of death increases in intensity as the patient approaches the time of induction of anaesthesia and the

operation. What exacerbates the fear is the patient being unconscious or being under the control of others. Given that most surgical operations have a certain degree of risk of death, some surgeries have higher risks than others, resulting in the patients becoming so meditative about their own mortality. Irrespective of what the cause may be, the fear of death is a common phenomenon and can be found in all cultures. According to (Kristy L. Rialon 2012), the reason why most patients do not feel relaxed discussing death is not clearly understood, but one of the most apparent reasons may be the inherent fear of death itself.

Another name for death anxiety is thanatophobia, which means the fear of dead or dying people or things. People with exaggerated fear of death develop thanatophobia, which is a complex type of phobic disorder in which the individual experiences an extreme and dominant fear of death that affects their daily life. Thanatophobia may have its roots in fears of the unknown. It is normal for all humans to want to know and understand what goes on in the world in which they live. However, the knowledge of what happens after death, cannot be explicitly established while we still remain alive (Fritscher 2016). Some people are more at risk of developing thanatophobia than others; clever and inquisitive people are often at higher risk of developing this type of phobia, as are those people who are interested in knowing their own philosophical or religious beliefs (Kristy L. Rialon 2012). Death anxiety becomes a problem to the individual when it significantly affects their life and makes it harder to adjust and live a quality life. People with death anxiety are said to have a frequent and recurring experience of extreme, intense anxiety reactions associated with death as a result of any slightly unsafe situation. They persistently imagine the manner in which they might die in various circumstances and such imaginations are always accompanied by the experience of anxiety reactions over them. When individuals with thanatophobia are confronting surgery, they experience more anxiety than individuals without thanatophobia (Fritscher 2016).

Susleck et al. (2007) conducted a phenomenological study to investigate the perianaesthesia experience from the patients' perspective. Ten surgical patients, consisting of five female and five male, were selected using a purposeful sampling technique to participate in the study. The researchers interviewed and recorded the patients' responses specifically on their experience following anaesthesia and surgical operation. Thematic analysis was performed following the transcription of the recorded information. Two main themes were revealed following analysis: control and death. Participants expressed control over self and time, as well as concerns over possible death which were revealed among all transcribed data. Participants described their fear of death with phrases such as 'end of time', 'goodbye means goodbye', or one describing the operating table as the 'execution table'. The research is limited on methodological grounds. Phenomenology as a research approach does not produce generalisable data because the samples are generally very small, so we can say that the experiences of the participants are not diverse.

Nigussie et al. (2014) looked at predictors of pre-operative anxiety among surgical patients. Cross-sectional study involving qualitative data collection was used with 239 participants booked for surgical operation. The aim was to evaluate the predictors of pre-surgical anxiety. Five trained nurses conducted structured interviews to collect data using a validated questionnaire. State-trait anxiety inventory (STAI) was also used to collect information on patients' anxiety. SPSS was used to analyse the quantitative data. The findings indicated that pre-operative anxiety was significant in over 70% of the participants. Fear of death was identified as the most significant factor responsible for pre-operative anxiety (38.1%), followed by fear of the unknown (24.3%). The limitation of the study is related to the recruitment of patients with different categories of surgical operation as well as patients with previous history of surgery and anaesthesia. These factors can lead to different levels of pre-operative anxiety.

2.12.7 Fear of Pain

Although having surgery is anxiety-provoking for many patients and for a number of reasons, one of the greatest and frequently experienced worries of surgical patients is related to post-operative pain. Pain is a personal experience that varies greatly from other human experiences. Pain is different from other things we encounter every day. It is subjective and personal; it is what the patient says it is (Yu et al. 2009); it is individualistic; no one can ever experience the pain of another person, no matter their relationship or how well they know them. This explains why people use different words or phrases to show to others the extent of their pain.

All surgical operations are accompanied by a certain degree of post-operative pain. It used to be that post-operative pain was not managed very well and less was done to assist patients to reduce their post-operative pain. The reason was because pain is considered by many as something that will calm down eventually and was regarded as an unavoidable part of a surgical operation (Yu et al. 2009). However, clinical investigations found that there was quicker recovery and there were fewer post-operative difficulties when pain was treated adequately after the operation. Medications and different procedures have been used to provide much better pain control. Another reason why patients experience intense post-surgical pain is because patients are frequently unwilling to report the extent of pain and discomfort they experience because they don't want to be known as complainers (Canadian Psychological Association 2014). However, this is no longer a problem since most hospitals train their staff on the techniques of assessing pain. It is still important for patients to communicate openly about their pain, to ensure that staff are aware and can take steps to relieve it.

Javad Parvizi (2015) reported that for patients undergoing surgery, the fear of pain is a primary concern. Although the feeling of post-surgical pain is normal, it goes together with a high level of anxiety and emotional distress. It has been estimated that up to 75% of surgical patients consider that it is 'necessary' to experience intense

pain after surgery, and 59% of surgical patients mention pain as their most common fear when considering surgery. Eight percent of the patients postponed their surgery because of anxiety related to pain (Javad Parvizi (2015). Considering pain as a serious problem in pre-operative patients, most hospitals operate an Acute Pain Service (APS), where a team of anaesthesiologists and nurses have a main duty of proper management of post-operative pain by using strong analgesic medications.

2.13 **Reducing pre-operative anxiety**

Evidence from research and clinical practice has shown that pre-operative anxiety is mostly reduced in two major ways. The more popular one is the pharmacological approach, which involves the administration of drugs to anaesthetize or sedate patients, and the less popular (non-medical) approach involves techniques drawn from psychology, physiotherapy, etc.

2.13.1 The pharmacological approach

The most frequently used method of reducing pre-operative anxiety is drug control therapy. Drug control therapy has been found to be very effective and produces significant effects in reducing pre-operative anxiety in patients awaiting surgical operation. The following is a review of the literature on the positive as well as the negative (adverse) effects of drug therapy in reducing pre-operative anxiety in patients undergoing elective surgery.

Tirault et al. (2010) conducted a prospective double-blind randomised placebo-controlled trial to find out how efficacious gabapentin is in decreasing anxiety before surgery. A number of patients (210) were randomly selected and assigned to groups receiving either a placebo, hydroxyzine (75mg) or gabapentin (1,200mg). The VAS was used to measure the patients' anxiety at three different times: before pre-medication, in the pre-operative assessment area and just before anaesthesia was administered. Participants' individual baseline anxiety levels, as assessed prior to the intervention, were not significantly different. The results of the study revealed that patients in the gabapentin group had significantly lower anxiety in the pre-

operative assessment area ($p<0.001$), and before the induction of anaesthesia, compared with the hydroxyzine group. The study also found that the gabapentin and hydroxyzine groups had higher percentages of 'satisfied and extremely satisfied' patients compared with patients in the placebo group, indicating the effectiveness of the drugs in reducing pre-operative anxiety. This study has limitations as the authors did not specify the type of patients used, the inclusion or exclusion criteria used in selecting the participants or the basis for choosing a high dose of gabapentin (1,200mg) as opposed to 75mg of hydroxyzine. These factors, if considered, would have enriched the reliability of the study.

Chen et al. (2015) conducted a systematic review to find out the effect of midazolam in third-molar extraction. After searching electronic databases from 1950 to 2013, grey literature was also searched, and 83 records were found. After removing duplicates, articles without data on anxiety levels or tooth extraction, and articles without full texts, ten studies met the eligibility criteria of the research. Following the review, the study found that six out of the ten studies compared midazolam with placebos. The remaining four studies compared midazolam with other drugs (clonidine, propofol, lorazepam and diazepam). After analysing the studies, Chen et al. found that, except in one study, midazolam had statistically significant effects in reducing anxiety compared with placebos. The researchers concluded that midazolam is safe and effective for controlling anxiety in patients undergoing third-molar extraction. However, the authors found that some few studies have reported complications associated with midazolam. Notably, problems such as drowsiness, lack of coordination, disorientation and decreased saturation of oxygen were reported as the major adverse effects of midazolam in the reviewed studies. The review has some limitations. The authors did not indicate the doses of the drugs used in the studies they reviewed, did not describe the patients and did not mention whether the studies they reviewed were all randomised controlled trials (RCTs). A clear description of these factors would make the review more reliable.

Maurice-Szamburski et al. (2015) conducted an RCT to study the effect of lorazepam on pre-operative anxiety and to assess patients' experience of general anaesthesia. Enrolled to participate in the study were 1,067 adult patients below the age of 70 scheduled for different types of elective surgery. The patients were randomly assigned by a computerised programme to three groups of 354 participants each. One group (the intervention group) received 2.5mg of lorazepam; another group did not receive any pre-medication; and the last group received a placebo. The outcome of the study was measured using different tools. Patient satisfaction with the surgery was measured by EVAN-G, a validated instrument describing six domains of satisfaction. The results indicated that no statistically significant differences in EVAN-G scores were recorded, meaning that lorazepam as pre-medication did not improve general satisfaction in patients scheduled for elective surgery when compared with the no pre-medication and placebo groups. The study also found that, compared with the no pre-medication and placebo groups, the lorazepam group presented with a high level of amnesia. Patients who received lorazepam were not easier to manage than patients in the two control groups. Finally, the study found that the lorazepam patients reported low-quality sleep and impaired sleep patterns. The study is limited in a number of ways. Mainly, Maurice-Szamburski et al. (2015) were interested in overall patient satisfaction with the surgery, which could be influenced by many factors. The authors did not specify how such confounding factors were controlled. Of the three groups of patients used to collect the data for the study, one group did not receive pre-medication and patients in this group were aware of this. Therefore, the study group (the lorazepam group) and the placebo group were double-blinded, while the no pre-medication group was not. The study would have been more scientific if it had been limited to the groups that were double-blinded, since patients in these groups were aware that interventions had been made and that, therefore, whatever outcome was observed could be attributed to the intervention.

The above-reviewed drugs were chosen because they are the most widely used drugs for treating pre-operative anxiety among patients undergoing elective surgery. The main reason for their popularity is their quick action and potential for rapid and smooth induction of anaesthesia. In addition, they are proven to cause little or no irritation of the airways, resulting in rapid recovery and shorter elimination half-life. The drugs also produce infrequent post-operative nausea and vomiting (Lalonde 2015).

2.13.2 Non-medical approaches for reducing pre-operative anxiety

2.13.2.1 The use of information and education

Patient information and education involves the provision of relevant health-related information by healthcare professionals with the aim of influencing and altering the patients' perceptions of health services, changing their behaviours and improving their health. For patients waiting for elective surgery, this type of education is also termed psycho-educational preparation (O'Brien et al. 2013). Mitchell (2005 p.147) explained that providing the appropriate and required information is the most essential aspect of psycho-educational therapy prior to elective surgery. Provision of adequate and desired information leads patients to develop good coping strategies and increases their self-efficacy.

Guo et al. (2012) conducted an RCT to test the efficacy of pre-operative education intervention in patients awaiting cardiac surgery. Healthcare information and strategies to cope with anxiety and pain before and after their surgical procedures were taught to 153 adult cardiac patients. Of these patients, 76 were randomised to a pre-operative education group, to which usual care, information leaflets and verbal advice were offered, while 77 patients were assigned to a usual care or control group. Each patient's anxiety level was measured before the intervention and seven days after the intervention. The primary outcome of interest was the difference in anxiety, as measured by the hospital anxiety and depression scale (HADS), while the secondary outcomes were changes in depression,

pain and length of stay in the intensive care unit. The results of the study revealed that patients in the education group experienced greater reduction in their anxiety and depression scores ($p<0.001$) compared with patients in the usual care group. Patients in the education group reported less interference with sleep as a result of pain than patients in the usual care group. There were no differences between the groups in terms of overall activity, mood and ambulatory capacity. A limitation of this study is that the patients used in the two groups were not blinded in the intervention. The scale used to measure the main outcome variable was not designed and validated to measure anxiety specific to surgery – that is, HADS would not necessarily measure surgical anxiety.

O'Brien et al. (2013) conducted a cross-sectional study using a written survey method posted or emailed to 375 patients who had undergone cardiac surgery between 2009 and 2010. The aim of the investigation was to find out how patients perceived the effects of written information provided by occupational therapists on their return to daily activity after the operation. The questionnaire was returned by118 respondents. Analysis of variance was calculated and the results revealed a significant relationship ($p<0.0001$) between understanding the information and feeling prepared for post-operative experience. Patients' reports of post-operative anxiety and stress were ascertained through their responses to the question 'What do you think would have assisted in decreasing the stress and anxiety you experienced?' The majority of the patients responded that receiving more information about the procedure was the main factor responsible for reducing their pre-operative anxiety. The study has a number of limitations. First, the researchers did not use objective measures to gather patients' perceptions of the written information they received from occupational therapists. Second, though the research was conducted using a survey to which participants responded, returning their responses via email, no adequate description of the research participants were offered. This would affect any attempt to replicate the study. The study would have been more relevant if it had considered these factors.

While research has established the relevance of information provision in reducing anxiety, many patients are not satisfied with the information they receive from healthcare providers pre-operatively (Mitchell 2005).

2.13.2.2 Patient Education

Patient education is the art of delivering knowledge and skills needed to change patients' behaviour, essential for improving the quality of health after surgical operation (Ramos 2014). It is a method of helping or assisting clients to actively engage and make informed decisions about issues related to their health and wellbeing. Reid et al. observed that, information provided to patients enhance clear understanding of the proposed medical procedure as well as the implication for surgery (Reid et al. 2010). Pre-operative education is any instructive intervention offered to patient before surgery with the aim of increasing their knowledge, health behaviours and health outcomes (McDonald et al. 2004). Pre-operative education materials differ across different hospital settings. They include discussion of pre-surgical processes, the real phases in the operative technique, postoperative care, and possible stressful situations related with the operation, likely surgical and non-surgical problems, management of postoperative pain and movements to be avoided after surgery. Such education is frequently given by physiotherapists, nurses or members of multidisciplinary teams, including psychologists, and it is given on one-to-one verbal communication, patient group sessions, video or information booklet (Edwards et al. 2017). Pre-operative education has the potentials to increase patient motivation to undergo surgery, influence their behaviour, psychological state and belief about surgery.

Kruzik (2009) stated that patient education is key concern for perioperative nursing staff in elective surgical situation. Typically, it consists of written materials in the form of information booklets or pamphlets presented to patients on the day of surgery. Other components of patient education include verbal instructions given to patients to prepare them for anticipated surgical outcome. Such

educational programme usually begins at the office of the surgeon and progress through pre-operative assessment and completed at the point of admission. Patients often appear to understand the materials and information given to them by physicians and nurses about the surgical process- pain management, post-surgical care, but in the actual sense of it, the level of anxiety patients experience impede them from comprehending majority of the information (Kruzik 2009). Thus, in modern surgical care, pre-operative patient education is a significant feature of the general surgical care. It improves patients' satisfaction, increase their safety and adherence to treatments. Ramos (2014) explained that, well designed education materials assist surgical patients in knowing medical complications, decreasing anxiety and enhance patients' compliance with instructions. Educated patients become more involved in the treatment decision making which increase their motivation, compliance and overall post-surgical satisfaction (Ramos 2014). According to (Kruzik 2009), patients are different and therefore learn differently. Consequently, patient education materials should be prepared and tailored to suit the individual patients' learning abilities, styles and coping mechanisms. Given the limited time available for the delivery of the teaching/learning materials, nurses should ask patients how they learn best so as prepare teaching materials to meet individual patient's needs. Such tailored teaching materials will make patients achieve a better surgical experience Aydin et al. (2015)

2.13.2.3 Surgical patients Need for Information

The stress and anxiety associated with surgery results in surgical patients desiring information about the operation, what to do before and what not to do postoperatively. Patients appropriately informed about the upcoming surgical operation appear to show more positive attitudes in their relationship with surgical team members and adhere to postoperative instructions. A well-educated surgical patient is expected to show more satisfaction and need little postoperative pain management, can be prepared more speedily and will have a shorter postoperative stay in the hospital and therefore having a more cost-effective care.

In a study of patients' need for information before colonic surgery (Sjöstedt et al. 2011), studied nurses' and doctors' experience of need for information before intraoperative care of patients. Thirty nine nurses and ten anaesthesiologists with different professional background and experiences were interviewed individually and in focus groups. The result of the study brought four different categories of patients' need for information about surgery: the need for information to reduce pre and post-operative anxiety, the need for information for a sense of assurance, information regarding the management of postoperative pain and provision of information about general knowledge of surgery. Sjöstedt et al. (2011) concluded that, there is need to supply information to specifically alley patients' anxiety and to create a sense of assurance and understanding of the entire health care procedure. It was recommended that, well-structured multidisciplinary information would provide patients with full understanding of the whole surgical process and therefore prepare them to take full responsibility for their care postoperatively.

In another study Keulers et al. (2008), investigated how surgeons perceive information requirements of their patients. A total of 24 surgeons and 125 surgical patients were administered a questionnaire containing 80 questions about different domains of information pertaining disease, physical examination, pre-operative period, self-care, anaesthesia, the operation, postoperative period and issues about the hospital. Opinions of both surgeons and patients were sought on what they regarded as optimum pre-operative information for surgical patients. Visual analogue scale was used to measure participants' responses. The result of the study revealed that, surgical patients are more interested in information about all areas of admission process. Surgeons in this study are convinced that, their patients are particularly interested in information related to the domains of disease, examination and the operation. The results further demonstrated that, surgeons underrate their patients' desire for the provision of wide-ranging, adequate pre-operative information. The study also revealed gender difference in the desire for information among the patients. Female surgical patients in this study

scored significantly higher than males in all domains excluding those concerning disease, physical examination and general surgical information. The authors concluded that, the study illustrates the need for improvements in patient education in surgical care. A major limitation of the study is associated with the use of visual analogue scale (VAS) as a measure comparing responses of the participants. VAS is simple to administer but understanding how to scale ones opinion using VAS requires some level of literacy. Thus, participants with low literacy level will find it difficult to scale their opinions using the visual analogue scale, particularly in the present study in which the comparison is made between surgeons and patients. Loos et al. (2008) suggested that, verbal rating scale (VRS) would do better in rating participants will low literacy level than will do the visual analogue scale.

Wellala et al. (2012) conducted a descriptive study of pre-anaesthetic information need by patients who undergo surgery. The study used 200 surgical patients drawn from the surgical units of a teaching hospital. An interview administered questionnaire was used to elicit responses from the participants. The aim was to find difference in patients' desire for information in relation to the type of surgery and anaesthetic method, and to find the relationship between need for information and age, gender, education and economic status'. The study result found that, 72.5% of the participants desired information before the induction of anaesthesia and surgery. The need for information was higher for female patients (81.93%) compared to their male counterparts (65.5%). Patients below the age of 30 years desired more information than those older. No statistically significant result was obtained in the desire for information and socioeconomic status. The authors advocated that, irrespective of the type of surgery, expansion of information provision to patients on areas patients are more interested should be made a priority by pre-operative multidisciplinary team members. Although the findings of the research concur with other researches, a major limitation of the study by (Wellala et al. 2012) is lack of proper description of the

questionnaire used to interview their participants; a problem that may hinder any attempt for the replication of the study.

2.13.3 Benefits of patient education

Aasa et al. (2013) investigated the benefits of pre-operative information for patients undergoing colorectal surgery. The aim of the study was to describe patients' experience of pre-operative information sessions with surgical nurses and the effects of such information on patients' participation in their post-operative care. The study is interview-based qualitative research. Twelve patients (nine male and three female) were enlisted for the study. Interpretative phenomenological analysis (IPA) was used to analyse the results of the interview. The analysis identified five major themes: being seen, security, trust, responsibility and participation (Aasa et al. 2013). Patients expressed satisfaction with the in-person meeting with pre-operative staff which gave them the opportunity to ask questions and acknowledge the fact that the nursing staffs were there to attend to them. The information provided to the patients made them feel more secure which added to their confidence and sense of trust in the healthcare delivery system. Aasa et al. (2013) also found that well-informed patients take more responsibility and are involved in their own care throughout the surgical process. The study is limited on a methodological basis. The small number of participants as well as the unequal number of male and female subjects used in the research reduced the quality of the findings as these factors would make generalisation a problem.

In another study, Yoon et al. (2010) found that patient education prior to hip or knee arthroplasty reduces length of hospital stay in patients. Yoon recruited 261 volunteer patients scheduled for unilateral total hip or knee arthroplasty to engage in a one-on-one pre-operative education programme. The patients were contacted via telephone three weeks before their scheduled surgery by a pre-operative patient educator (PPE). The participants were given the option to choose either to participate in a one-on-one session or telephone interaction. Data collection was retrospectively made, and was centred on

patients' length of stay in the hospital post-operatively. Other parameters included comorbidities, surgical history and adverse events that occur in the hospital. Of the total 261 patients enlisted for the study, 168 (68%) agreed to participate in the education programme, while 69 (36%) did not. The results of the investigation reveal that, after controlling for the variables age, sex and the number of comorbidities, the group that participated in the education programme had a mean length of stay (LOS) one day shorter than the non-education group at 0.001level of significance. There were no statistically significant differences in length of stay between those educated one-on-one and those educated via telephone interaction. Overall, the study shows that pre-operative patient education significantly reduced the duration of patients' stays in hospital by one day in comparison with patients who did not receive pre-operative education. The study is not without limitations, the main one being lack of randomisation which may reduce biases in the selection of participants. Also, the use of an individual counsellor is another factor limiting the quality of the study. Patient education is better achieved if a multidisciplinary approach is used (Sjöstedt et al. 2011). The above factors, if considered, would have enriched the findings of the research.

Kearney et al. (2011) conducted a descriptive study on the effects of pre-operative education on patient outcome after joint replacement surgery. A total of 150 patients scheduled for total hip replacement surgery who attended and who did not attend a hospital-administered pre-operative education session were involved in the study. Patients were selected after their operation was performed. Those who satisfied the eligibility criteria were assigned to an experimental or control group on the basis of whether they were involved in the hospital-based pre-operative education programme or not. Outcome and experience of the two groups were gathered through study of patients' electronic medical records, survey and telephone interview with patients 30 days post discharge. Apart from the structured interview class attended by the patients, other alternative sources of information were sought by the patients; though not specifically

related to surgery, they enhanced patients' knowledge base. Analysis of patients' survey results reveals two significant differences between the two groups. Patients in the education class were better prepared for the operation and were also better able to control their pain after the operation. No statistically significant difference was found with regards to clinical outcomes of pain scores, oral analgesic intake and ambulation distance on post-operative days one and three as well as post-operative length of stay in hospital. Based on attendance of a pre-operative education class, the results of a post-operative follow-up telephone interview also did not reveal any statistically significant difference between the two groups in terms of post-operative complications. A limitation of the study is associated with patients' access to other sources of information which enhanced their ability to be more prepared pre-operatively and built their capacity to deal with post-operative pain. Also, the authors did not state the focus and length of their follow-up post-operative telephone interview. Controlling patients' access to other sources of information and statement of the content of the post-operative interview would have enriched the quality of the study and would make it easy to replicate the study.

Johansson et al. (2010) conducted a pre-test/post-test design study consisting of two groups of surgical rheumatology patients, scheduled for hip arthroplasty to compare the effects of pre-admission education on two groups of patients. One group were given pre-admission education through telephone discussion in conjunction with standard written education materials; the other group received only standard written education material. Data were generated using two standard structured questionnaires: Orthopaedic Patients Knowledge Questionnaire (OPKQ) and Modified Empowerment Questionnaire (MEQ). Data analysis was performed using SPSS. Pearson's Chi-square, Fisher's exact test and two-sample t-test were also computed to compare the two groups of participants. Repeated measures analysis of variance, in conjunction with Bonferroni-corrected contrast, were also calculated to determine significant changes between groups at $p < 0.05$. There was no statistically significant

difference between group at p=.05 level of significance. However, a statistically significant difference for knowledge scores was found between the two groups at the point of discharge. The group that received more education has lower knowledge scores compared to the group that received only written materials. Patients who had a telephone session had more sense of empowerment compared with the second group. There was no statistically significant difference in length of hospital stay and health-related problems between the two groups. The limitation of the study is associated with the methodology. Johansson et al. (2010) did not operationalise the key variables of their study: orthopaedic patients' knowledge and empowerment. Providing an operational definition of these concepts would provide a better understanding of the findings of the study.

Guo et al. (2012) conducted a randomised controlled trial to determine whether pre-operative education intervention can reduce anxiety and improve recovery among Chinese cardiac patients. One hundred and fifty-three cardiac patients were randomly assigned into a trial and usual care group. Patients in the trial group were provided with usual care, information leaflets and verbal advice. The other group were left with usual hospital care alone. Patients in both groups had similar characteristics at baseline. HADS and brief pain inventory-short form (BPI-sf) were used. The study results show that patients in both groups had reduced anxiety scores, but patients in the education group experienced less anxiety and scored lower in depression scores and spent less time in ICU (four hours less) compared with participants in the usual care group. There was no statistically significant difference in pain scores between the two groups. However, mean changes from baseline scores were higher in the usual care group. One of the limitations of this study is the use of VAS as a measure of participants' responses. VAS is simple to administer but understanding how to scale one's opinion using VAS requires some level of literacy. Thus, participants with low literacy levels will find it difficult to scale their opinions using VAS, particularly in the present study in which the comparison is made between surgeons and patients. Loos et al. (2008) suggested that VRS would

be better in rating participants with low literacy level than the visual analogue scale.

2.14 **Types information**

Information provision to patients prepared for invasive surgical procedures is one of the most fundamental roles of pre-operative team members. However, the style or mode of providing such vital information differs. The difference is as a result of some obvious factors such as patients' need for information, providers' expertise, and availability of information materials, time available and patients' coping styles. The overall aim of information provision is to prepare the patient for eventualities and to enhance their psychological coping mechanisms. This therefore makes psycho-educational preparation a vital component of pre-operative care in modern elective surgery.

Mitchell (2006) categorised information provision into two categories: problem-focused coping information and emotion-focused coping. These two broad categories are further sub-divided into six sub-categories. These are discussed briefly hereunder.

2.14.1 Problem focused coping information

This is the most commonly provided pre-operative information. The focus of problem-focused information is to enhance the patients' ability to make an informed personal decision about the upcoming procedure. The information provided helps the patient to directly challenge the anxiety-provoking aspects of the procedure and to enable them to construct a plan of action to modify, avoid or eliminate the anxiety-provoking event before, during and after the surgery. This kind of information is provided when the anxiety-provoking event is thought to be more likely to be modified by direct action (Mitchell 2006). Problem-focused information is further sub-divided into three main categories:

2.14.1.1 Procedural or situational information-This has to do with the sequential arrangements of events on the day of the operation as the patient is admitted to the surgical unit. The information is centred

around what will happen next and the sequence in which events will take place.

2.14.1.2 Behavioural or role information-Behavioural or role information includes the actions surgical patients are expected to perform before, during and after the operation. This includes information on the type of posture to take during the operation, what to do and what not to do after the operation, for example no lifting of weight within the first six postoperative weeks.

2.14.1.3 *Sensory information*- This consists of information about bodily sensations likely to be experienced by the patients during or after the surgical operation. Such sensations could be related to the actions of drugs, anaesthetic agents, pain or medical equipment used for the surgery Mitchell (2006).

2.14.2 Emotionally focused coping information

Studies have shown that problem-focused coping information is more reliable in terms of making patients aware of and prepared for surgery, although a number of studies argued differently. Such studies based their arguments on the evidences gathered from research on patients' perception of the healthcare situation where anxiety-provoking events are believed to be unchangeable. Again, emotionally-focused coping strategies are most preferred by patients, particularly those using the avoidant coping style whose anxiety levels used to increase when presented with too much information (Mitchell 2006). Emotionally-focused information is also categorised into three:

2.14.2.1 Cognitive strategies- The information provided under this category is intended for the patient to experience less negative thoughts about the intended surgery. It is therefore a mental strategy equipping the patient to avoid catastrophising. The patient is taught to mentally rehearse the anxiety-provoking situation related to the upcoming procedure.

2.14.2.2 Relaxation techniques

This involves relaxation programmes such as music therapy, distraction, hypnotic techniques and

2.14.2.3 Guided imagery

These are a set of activities involving the imitation or modelling of the desired behaviour through a real-life situation, demonstration teaching, reading from hospital prepared information leaflets, websites and multimedia programmes, such as videotaped programmes (direct imitation) or passively imitating the desired action, such as by watching other patients (indirect imitation) (Mitchell 2006).

2.15 **Music therapy intervention**

The use of music to reduce pre-operative anxiety is receiving greater attention (Bradt et al. 2013). This is due to the fact that music therapy and music medicine interventions are recognised as being more effective among other non-pharmacological interventions, for reduction of pre-operative anxiety (Lawson 2013).

Weeks and Nilsson (2011) studied the effects of music intervention on patients during angiographic procedures. One hundred and three patients were selected to participate in the study. Subjects were randomly assigned to the 'music' or the 'no music' group. A special form of therapeutic music (MusiCure), designed to provide a calming effect on patients, was used. Patients in the 'music group', apart from receiving standard care, listened to the music using battery-powered MP3 players, while those in the 'no music group' received only standard hospital care. The intervention outcome was measured using a ten-point numerical rating scale (NRS) ranging from 0=no anxiety to 10=worst possible anxiety. The findings of the research show that music intervention brought significant reduction in the level of subjects' anxiety and improved their wellbeing. The limitations of the research relate to its design. The subjects were aware of the intervention, and the measures of anxiety and wellbeing were based on subjective reports by the patients. No records of physiological parameters were obtained to justify their subjective reports.

Pittman and Kridli (2011) conducted a review to illustrate the efficacy of music intervention as a means of reducing pre-operative anxiety in adult surgical patients. The review included 11 articles. After their analysis, the researchers found that 38% of the articles reviewed studied the effects of listening to music on patients' blood pressure. Blood pressure was significantly lower in patients who listened to music before and after the intervention. Similarly, three (43%) of the studies investigated the effects of listening to music in relation to the patients' heart rates. These studies reported that heart rates were significantly reduced in patients anxious about medical or surgical procedures. The review is limited in that it includes patients with a variety of surgical conditions, some of which possess higher potential for triggering anxiety than others.

Lin (2012) investigated the effect of a relaxation tape on levels of anxiety in surgical patients. A single group pre-test/post-test quasi-experimental design, with a sample of 80 surgical patients drawn from five surgical wards, was used. Interventions consist of listening to a specially made ten-minute relaxation tape, a deep breathing exercise, an imagery period and return to normal all administered to participants a day before their scheduled surgery. The outcome measures were administered before and after the intervention. Intervention outcome was assessed with a state-trait anxiety inventory (STAI). Records of the participants' blood pressure and heart rate were also taken using standard instruments. The results of the study show that after patients completed listening to the relaxation audiotapes pre-operatively, their level of pre-operative anxiety significantly dropped. This included subjective feelings of anxiety and included anxiety-related physiological responses like respiration, pulse and systolic blood pressure. The study is limited on methodological grounds. A study involving pre-test/post-test experimental design would have been more scientific if a control group was used to assess the outcome of the intervention. Also, the use of a convenience sample assigned to groups undermined the robustness of the research design.

Luo (2013) investigated the influence of written and oral information against oral information alone on pre-colonoscopy anxiety. Participants were assigned to either a written and oral information group or oral information alone group. A Chinese version of STAI was used to assess participants' baseline anxiety before intervention. Participants in group one were given written and oral information while those in group two were only given oral information prior to colonoscopy. Both groups had similar levels of anxiety and personal characteristics prior to the intervention. Participants also responded to the Chinese version of STAI after the intervention. Student t-test was used to analyse the pre-test and post-test results of the participants for both groups. The findings show that there was no statistically significant difference in the participants' levels of pre-operative anxiety between the two groups, or within the two groups, despite the reduction in anxiety scores. The conclusion by Luo (2013) was that neither written and oral information nor oral information alone reduces patients' pre-operative anxiety in colonoscopy. The limitation of the study lies in the little time of exposure to intervention, a situation that might affect their understanding and comprehension of the information.

Lee et al. (2011) undertook a randomised clinical trial to evaluate the effectiveness of broadcasting compared with headphones in delivering music intervention to reduce pre-operative anxiety of surgical patients in the pre-operative holding area. A total of 167 adult surgical patients, between the ages of 20–65 years, participated in the study. Participants were assigned randomly either to the control, headphone or broadcast groups. The two experimental groups (headphone and broadcast groups) listened to the same instrumental music, while no music was given to participants in the control group. The outcome was measured using the VAS and heart rate variability. VAS scores showed a significant decrease in the headphone and broadcast groups compared to the scores of participants in the control group. There was no statistically significant difference in heart rate variable between the headphone and broadcast groups. Lee et al. (2011) concluded that both headphone and broadcast music are

very effective in reducing surgical patients' pre-operative anxiety in the waiting room. The study is limited in that the participants were exposed to the same music, not music of their preference. Also, the study would have been more scientific if Lee et al. had designed the study to involve a pre-test/post-test design. Were the above factors considered, the research findings would have been more generalisable.

Han et al. (2010) carried out a randomised controlled trial to investigate the effects of music intervention on physiological stress response and level of anxiety among mechanically ventilated patients in the ICU. The participants of the study were 137 patients going through mechanical ventilation. The participants were randomly assigned to either a music listening group, headphone group or control group. The outcome of the study was measured using the Chinese version of Spielberger's state-trait anxiety inventory. Other outcome measures recorded include physiological factors – heartbeat, respirational rate, oxygen and blood pressure. The findings of the study showed differences in the physiological factors of heart rate, respirational rate, systolic and diastolic blood pressure, as well as the scores of the STAI. A higher mean difference was recorded in the music listening groups in both STAI and physiological variables. On the other hand, a significant increase in heart rate and respiratory rate over time was observed in the control group. A comparison of group pre-test/post-test within the group for the Chinese version of STAI scores revealed a significant reduction in anxiety for the participants in the music listening group as well as those in the headphone group. There was no statistical difference within the group pre-test/post-test scores for both STAI and the physiological parameters of the participants in the control group. The limitation of the study is concerned with not giving the participants their own choice of relaxing music. Restricting participants to choose from a collection of music from the researcher undermined the quality of the study. The study would have been more relevant if participants had been allowed to choose their most preferred music.

2.16 **Video film intervention for reducing pre-operative anxiety**

Provision of information to surgical patients takes many forms. Some patients will have the information given to them verbally. Others will receive printed materials, such as information leaflets or flyers. In recent years, the use of audio-visual materials to prepare patients for medical and surgical procedures has gained popularity.

Jlala et al. (2010) investigated the effects of multimedia information on pre-operative anxiety relating to procedures under regional anaesthesia. A total of 110 patients scheduled for upper and lower limb surgeries under regional anaesthesia were randomised into study and control groups. Patients in the study group were exposed to a short video, made by the authors, showing a surgical patient's journey, including the administration of spinal anaesthetic and/or brachial plexus block. Anxiety was assessed using the STAI and the VAS. Each patient was assessed before and after they watched the film and eight hours after their operation. The study results indicated that patients' anxiety scores were not statistically significant at baseline. Female patients were more anxious than their male counterparts at baseline. Patients in the control group experienced statistically significant anxiety as they approached their time of operation, compared with their baseline scores. Conversely, there was no statistically significant increase in anxiety among the patients in the experimental group. Their anxiety following exposure to the film was reduced compared with their initial baseline anxiety scores; however, the score did not reach the level of statistical significance. Of the patients in the experimental group, 90% expressed satisfaction with the film they watched. The patients reported that the video would serve as an effective means of providing information to patients awaiting surgery. Approximately 70% of the patients in the experimental group reported feeling calm. The study has some limitations. The case mix, as well as the difference in administration of anaesthesia, could lead to differences in the patients' levels of pre-operative anxiety. Equally, the use of a non-standardised questionnaire to collect feedback from the participants after watching the film limits the quality of the results, as responses provided by the

participants might be biased. The study would have been more relevant if these factors had been taken into consideration.

In another study, Arabul et al. (2013) conducted an RCT to study the effects of video information prior to un-sedated upper gastro-intestinal endoscopy. The researchers were interested in the general level of satisfaction and pre-operative anxiety in patients. They also wanted to see what effects adding video and detailed verbal information would have on normal procedural care of patients. In this study, 440 patients scheduled for gastro-endoscopy were randomised to either a video group or a verbal information group. Patients in the video group (226) were shown a ten-minute video clip. The key information in the video included the need for endoscopic procedures, cooperative relationships between clinician and patient, the feelings patients might experience during endoscopic procedures, and likely complications following the procedure. There was no significant difference between groups in terms of their demographic variables. Patients' situational anxiety scores were obtained using the STAI. The results of the study showed that the patients in the video group had lower STAI-S scores after watching the film compared with the scores of patients in the verbal information group. After endoscopy, patients' responses to the statements 'The procedure was similar to what was explained' and 'It was worse than explained' were evaluated. Patients in the video group appeared to have responded positively to the first question, indicating that the video provided the desired information, reduced their anxiety, and increased satisfaction and readiness to undergo another procedure in future. One study limitation relates to the inadequate description of how participants were selected. Also, unequal numbers of male and female participants were used in the study. The study would have been more scientific if the authors had stated their method of selecting the research participants and included equal numbers of male and female subjects.

Wu et al. (2014) investigated the efficacy of an enhanced multimedia educational programme in decreasing pre-operative anxiety and patients' satisfaction with information before they go through cardiac

catheterisation. The research used a randomised experimental, three-cohort prospective comparison design. A total of 123 cardiac catheterisation patients were assigned randomly to one of three groups: regular education; accessibility-enhanced multimedia informational education; instructional DVD education. Patients in the regular education group received the normal nurse-administered ward-based care, such as the conventional information on cardiac catheterisation and verbal instructions from cardiac nurses on the day of their admission. In addition to the routine nurse-led information, patients were also given written information in pamphlets designed to educate patients on the cardiac catheterisation procedure. Patients in the enhanced multimedia group were shown a video on the importance of cardiac catheterisation, notices and precautions before, during and after cardiac catheterisation, physical activities after cardiac catheterisation and a diaphragmatic relaxation technique. Finally, patients in the instructional DVD group were shown a DVD, together with a nurse, on the day of their admission. The DVD has the same content as the one shown to the enhanced multimedia group. Assessment of anxiety was done by Spielberger's STAI. In addition, a satisfaction instrument was also administered to all patients one day after cardiac catheterisation. Several statistical tests ranging from descriptive statistics to Chi-square, one-way analysis of variance and Scheffe's post hoc test were run to analyse the data collected from the patients. The findings of the study show that all the study participants experienced moderate to low anxiety at baseline before exposure to the intervention. Patients assigned to the accessibility-enhanced multimedia informational education group had significantly lower levels of anxiety and were most satisfied with the materials they received as opposed to patients in the regular routine intervention and the DVD groups. A statistically significant difference in anxiety levels was only found before cardiac catheterisation in all groups of patients. The study also found that watching an instructional video on a large screen accompanied by nurses' instructions increased patients' satisfaction with the cardiac catheterisation procedure. One of the limitations of this study is the use of unequal numbers of male

and female participants and the use of patients with previous history of cardiac catheterisation along with those who have no previous history. The study results, therefore, must be interpreted with caution because of these limitations.

2.16.1 The use of hypnosis and suggestion in reducing pre-operative anxiety

Hypnotherapy is increasingly appreciated and used as an effective technique in reducing anxiety in patients with different types of anxiety-related disorders. The technique of hypnosis is used to help enhance the confidence and self-belief of the patients while decreasing their feelings of fear and intense worry. Hypnosis helps patients to develop the ability to reach a state of calm and peaceful state of mind required to overcome the overpowering negative emotions they are living with. The major aim of the hypnotic technique is to access the individuals' unconscious. By means of the effects of suggestions, hypnosis works to induce positive change. The suggestions are geared towards enabling the clients to learn about the triggers of their anxiety as well as changing the ways they react to the anxiety-triggering events. Thus, clients undergoing hypnosis are taught to understand and notice what events trigger their anxiety and how they are to cope with them when they begin to experience the triggering events or their symptoms. Many researchers have studied the effectiveness of hypnosis in reducing pre-operative anxiety. The following are reviews of literature on the use of hypnosis in reducing pre-operative anxiety.

Schnur et al. (2008a) designed a research to find out if a short, pre-operative, hypnotic intervention would be an efficient therapy for decreasing surgical patients' experience of pre-operative psychological distress as they await breast cancer operation (excisional breast biopsy). A total of 90patients with a mean age of 46 years were recruited to participate in the study. The participants were randomly assigned to one of two groups. One group received a 15-minute pre-surgery hypnosis session; the other group received a 15-minute post-operative attention control session. The patients in the hypnosis session group received suggestions aimed at increasing

relaxation and reducing their distress. The patients in the attention control session group were exposed to non-directive empathic listening. Visual analogue scales (VAS) and the short version of the profile of mood states (SV-POMS) were used to measure pre-surgery distress in the research participants. Analysis of variance was computed to analyse the results. Post-operatively and before the surgery, participants in the group exposed to hypnosis had significantly scored lower average values for pre-operative VAS emotional upset, VAS depressed mood and SV-POMS anxiety; and significantly higher levels for VAS relaxation than attention controls. The study concluded that a brief hypnosis session before surgical operation is an effective means of reducing pre-operative anxiety and other psychological distress before excisional breast biopsy.

Abdeshahi et al. (2013) studied the effect of hypnosis on induction of anaesthesia, pain perception, control of haemorrhage and anxiety in patients undergoing third-molar extraction. A total of 24 male and female patients volunteered to participate in the study. Hypnosis was achieved either by asking patients to focus their gaze on one spot or by using Chanson's method. Patients' anxiety was assessed using the STAI before the beginning of hypnosis and before administration of anaesthesia. The VAS was also used to measure patients' experience of pain. The results of the study indicated that only two subjects (8.3%) who underwent hypnosis reported experiencing significant pain after hypnosis was induced in them. Conversely, of the subjects in the anaesthesia group, eight (33.3%) reported experience of pain. This result indicates that hypnotised patients experienced less pain after the first few post-operative hours. There was no statistically significant difference in anxiety scores between the two groups of patients; however, a lower volume of analgesics was used by the hypnotised patients group compared with the patients in the local anaesthesia group. A limitation of the study relates to the method used in selection of the participants. The authors did not control for past experience of dental surgery and use of anaesthesia, which could have a strong influence on the outcome of the study.

Schnur et al. (2008b) conducted a meta-analysis to establish the effectiveness of hypnotic techniques in managing distress related to medical procedures. After searching the electronic databases PsycINFO and PubMed from their inception up to the month of February 2008, 26 RCTs involving 2,342 participants were retrieved for inclusion in the analysis. Analysis of these studies reveals that approximately 82% of patients who underwent different medical procedures and received one form of hypnosis or another showed reduced emotional distress compared with patients in control groups. The data from the studies analysed supports the utilisation of hypnosis as an alternative intervention strategy for reducing emotional distress in patients undergoing different medical or surgical procedures. One limitation of the study is that the articles analysed include studies involving both adults and children as participants. This reduces the quality and the outcomes of the analysis.

2.17 **Summary**

In this chapter, relevant literature related to the research was reviewed. The review was based on a comprehensive search using the SALSA framework. A systematic search of the literature was undertaken to address the research questions and aims and objectives of the study. Keywords and phrases that capture the various phases of the study were entered into the electronic databases: ASSIA, PubMed, MEDLINE, PsycINFO, and psychology and behavioural science collections on the EBSCO interface. OR & AND commands were used to combine the terms and phrases to procure relevant information from the databases. Hand searching of references of retrieved articles was also done. Websites of specific organisations and Google and Google Scholar search engines were also browsed to retrieve grey literature. Through this process, literature on the study area, published in the English language between the years 2007–2017/18 were included in the review.

The literature review was organised according to topics and sub-topics according to the phases of the study. Thus, the literature review covers sub-headings such as surgery, elective surgery and the

development of elective surgery. Others include pre-operative anxiety, causes and prevalence of pre-operative anxiety as well as the effects of pre-operative anxiety. There is also a section of the review on reducing pre-operative anxiety where approaches such as pharmacological and non-pharmacological pre-operative anxiety reduction interventions were reviewed. There are sections of the review that cover translation of health instruments and patients' preference of intervention. Some of the retrieved and reviewed literature information was included in the relevant chapters of the study where they fit.

3 CHAPTER THREE: ANXIETY AS A PSYCHOLOGICAL DISORDER

3.1 Introduction

The rationale for this chapter is to acquaint the readers with the different categories of anxiety disorders as a distinct class of psychological disorders. Finding from earlier studies shows that individuals with a history of psychological disorders and specifically psychiatric conditions such as anxiety and depression are more susceptible to developing preoperative anxiety when undergoing surgery than patients without depression and anxiety disorder Caumo et al. (2001). Individuals with history of anxiety disorder(s) facing surgical operation live in fear that their surgical problems will affect their overall health and may lead to their eventual dead even though the surgical case is not life threatening. As a result, such patients develop anxiety related physical symptoms, they are continually worried and become hyper-sensitive to any kind of bodily sensations. Studies have found that matched with patients without anxiety disorder, patients who suffer any of the sorts of anxiety disorder may experience greater degree of postoperative problems and complications as a result of their attendant pathology associated with anxiety disorder Li et al. (2008). These types of patients' needs to be identified by clinicians so as to be provided adequate psychological services to reduce the effects anxiety would have on their impending surgery. Another reason behind identifying patients with underlying anxiety disorder or any other mental disorder prepared to undergo surgery is not only for resolving their mental health problems but also precise interventions to prepare healthcare providers become aware of the patients' multifarious care needs are essential so as to bridge the gap in service provision and improve the overall quality the surgical care they receive.

In Nigeria, and in the hospital where the study was conducted, the acute shortage mental health service providers in the surgical units of the hospitals is a major challenge in attending to the preoperative

anxiety related problems surgical patients present with. A consequence of this lack of human resources needed to provide mental health services to surgical patients result in such patients undergoing surgery under intense fear, which according to Li et al. (2008) makes the disease itself become very hard to treat, the patients' physical symptoms often worsen, and in some instances the patients die sooner. Therefore, understanding the different types of anxiety disorders will provide clinicians, members of the preoperative assessment teams and all those concerned with patients' surgical care to appreciate the role anxiety disorders play in affecting the overall health of the surgical patients. The following sections present the different types of anxiety disorders, their prevalence, symptoms and their effects on the patients.

3.2 Anxiety Disorders

Anxiety disorders refer to a group of conditions characterised by unrealistic, unreasonable fears and anxieties that are so extreme and severely disabling to individuals. Epidemiological studies have shown that the lifetime prevalence rate of all anxiety disorders is estimated at 28.8% (Liao et al. 2008). Anxiety disorders are different from the normal transient fears and anxieties due to their excessive and persistent nature. There is a remarkable difference among sufferers of these disorders in terms of prevalence and manifestation of the symptoms as well as of events or situations that trigger them (Butcher et al. 2014; Nolen-Hoeksema 2014).

The diagnostic and statistical manual of mental disorders, DSM-5, distinguishes six different primary types of anxiety disorders. These are: specific phobias, social phobias, panic disorder, generalised anxiety disorder (GAD), obsessive compulsive disorder (OCD) and post-traumatic stress disorder (PTSD) (American Psychiatric Association 2013). There are a number of common features across these disorders, which are not only related to their symptoms but also in terms of the factors responsible for their cause.

For each of these disorders, research has shown that genetic and environmental factors play significant contributions to their aetiology. The genetic vulnerabilities may not be specific or the same in all the sub-types of anxiety disorders (Kring and Johnson 2013). A notable genetic susceptibility is exhibited as a personality trait called neuroticism, a tendency to have frequent feelings of negative mood (American Psychiatric Association 2013). Some brain structures are also implicated in the development and maintenance of anxiety disorders; these include the limbic system and some portions of the cerebral cortex. The gamma-amino-butyric-acid (GABA), norepinephrine and serotonin are the major neurotransmitters implicated in almost all types of anxiety disorders (Noggle and Dean 2013; Butcher et al. 2014). Psychological factors found to be implicated in the development and maintenance of anxiety disorders includes classical conditioning of fear, anxiety and panic. Also, the role of faulty cognition, distorted perception, lack of control of one's environment and emotion have been reported as some of the major factors responsible for the development of anxiety disorders (Nolen-Hoeksema 2012).

In the following sections, each primary type of anxiety disorder, their causal/risk factors, major symptoms, and the prevalence and effects on individuals will be discussed. A diagnostic classification for each type of anxiety disorder as provided by the classification model of the American Psychiatric Association–the diagnostic and statistical manual of mental disorders (DSM-5) –will be presented

3.3 **Specific phobias**

Specific phobias are irrational fears related to specific objects or situations. Individuals with specific phobias exhibit continual and unrelenting fear and understand that the fear is precipitated by specific objects, events or situations (LeBeau et al. 2010; Ollendick et al. 2010; Maddux and Winstead 2012).A person with specific phobias displays intense fear reactions, similar to panic attacks, when he/she immediately comes into contact with the object of his/her phobia. Individuals with specific phobias also experience intense feelings of

anxiety whenever they presume they are coming into contact with the event, object or the situation that causes their phobia. The individuals make greater efforts to avoid the encounter because the phobic response is unpleasant and is followed by unrealistic thoughts that terrible things are likely to happen (American Psychiatric Association 2013). If, for whatever reason, people with specific phobias come into contact with the object or situation of their phobia, they become anxious and their anxiety progresses from mild to severe feelings of apprehension and even distress. Their phobic behaviour gets reinforced by their avoidance of the situation because whenever they avoid it, their anxiety reduces–a situation that will make them avoid it again in the future (Butcher et al. 2014). The DSM-5 classified specific phobias into four major sub-groups.

3.3.1 Animal-type phobias

This type of specific phobia is concerned with the irrational fear of certain animals like dogs, cats, rats and snakes. Other feared objects in this category include insects like spiders. According to Nolen-Hoeksema (2014), snakes and spiders are the most feared of the animals and insects of phobias among phobic patients, probably because of their evolutionary history as fear-evoking. It is natural for most people to startle when they come into contact with snakes or spiders, but they will not be diagnosed with a phobia because their fear fades as soon as they are away from what evokes the fear. To be diagnosed as having animal-type phobia, the individual must be living in terror of coming into contact with their object of fear and is making efforts to avoid encountering them (Nolen-Hoeksema 2014).

3.3.2 Situational-type phobia

The focus of this type of phobia is on specific situations, such as driving, fear of heights, bridges, lifts or enclosed places. The individual makes efforts to avoid coming into contact with any of the situations that may trigger the feelings of anxiety.

3.3.3 Natural environment-type phobias

The irrational fear in people with a natural environment-type of phobia is of environmental situations. Events such as a storm, heights and

water are what trigger the irrational fear. This type of phobia is very common in mild to moderate levels and serves an adaptive purpose as it enables people to avoid these situations (LeBeau et al. 2010).

3.3.4 Blood-injection-injury type phobias

People with this type of anxiety disorder are irrationally afraid of coming into contact with blood or injury. One notable feature of this phobic disorder is that, unlike people with other types of phobias, coming into contact with their phobic objects or situations triggers the 'fight or flight' response (such as increased heart rate and blood pressure). People with the blood-injection-injury type of specific phobia experience the opposite–their heart rate and blood pressure significantly drop and they often have a higher tendency of vasovagal fainting (near fainting) than patients with other types of specific phobias (LeBeau et al. 2010; American Psychiatric Association 2013; Nolen-Hoeksema 2014).

3.3.5 Prevalence, risk factors and consequences of specific phobias

The rates of specific phobias vary according to countries and geographical regions. For example, in the USA, it has been estimated that there is a prevalence rate of between 7–9% specific phobias in a community within a period of 12 months (American Psychiatric Association 2013). A similar estimate to the USA is found in European countries, with an estimated prevalence rate of 6%. By contrast, there is a lower prevalence rate in Asian, African and Latin American countries where the estimated prevalence rate stands at 2–4%. There is approximately a 5% prevalence rate among children, and 16% among teenagers. The rate drops lower in adults to around 3–5% (American Psychiatric Association 2013).

Even though the prevalence rate of specific phobias is less in older people, it is one of the most experienced psychopathologies among this category of people. Many explanations have been offered to account for this (Butcher et al. 2014). First, specific phobias co-occur with other medical conditions. Diseases such as coronary heart disease and chronic obstructive pulmonary disease have been reported to co-occur among elderly people with specific phobias.

Second, older people with specific phobias may present anxiety and depression concurrently and therefore are likely to be diagnosed as suffering from anxiety disorder, the unspecified type.

Females are mostly diagnosed with specific phobias than males with a ratio of 2:1. There is a variation, however, according to the specific phobic objects with animals, situation and natural environment triggering higher anxiety in females as opposed to males. Blood-injection-injury phobia has no variations according to gender (American Psychiatric Association 2013; Butcher et al. 2014; Nolen-Hoeksema 2014).

Research has shown that genetic, physiological and temperamental as well as environmental factors have been found to risk the development of specific phobias (LeBeau et al. 2010; Butcher et al. 2014). For example, neuroticism, a temperamental factor characterised by a tendency to experience negative mood and behavioural inhibition, has been linked with specific phobias. The environmental risk factors are attributed to child-rearing practices such as over-protective parenting styles, significant life events like the loss of one or both parents, physical and sexual abuse are established risk factors in the development of specific phobias (Butcher et al. 2014).

Genetic susceptibility concerns the presence of specific genes discovered through family studies of individuals with specific phobias. Members of the same family with a specific phobia have up to four times more chance of developing a phobia than members of the same family without a phobia (American Psychiatric Association 2013; Nolen-Hoeksema 2014). LeBeau et al. (2010) reported that the animal-type specific phobia and situation-type specific phobia are linked to certain specific genes. LeBeau et al. (2010), however, did not explain the specific genes to justify their claim.

The functional effects of specific phobias on individuals suffering the disorder relate to their psychological, social and occupational environments. A specific phobia impairs the individual’s ability to

effectively function in their occupational settings. Among older people, specific phobias may affect care-giving activities. The fear of falling in adults with the natural environment-type of specific phobia may lead to decreased movements and reduced social functioning. Individuals who fear more than one object, event or situation are likely to have more impaired social and occupational functioning and reduced quality of life than persons who fear only one event or situation. People with the blood-injection-injury type of specific phobia have higher susceptibility for developing anxiety related to hospital, medical or surgical procedure (American Psychiatric Association 2013).

Table 2 DSM-5 Diagnostic criteria for specific phobias

Diagnostic criteria
Intense fear and anxiety related to a particular event, object or situation. The event, object or situation of phobia induces instantaneous fear or anxiety at every encounter. There is active avoidance of the phobic object or situation where it has to be encountered; intense fear and anxiety always accompany its endurance. The fear and anxiety are disproportionate to the real threat posed by the object or situation and the social/cultural environment. The fear and anxiety persist for at least six months or beyond. The fear, anxiety or their avoidance result in considerable impairment in the individual's major areas of functioning. The disorder is not explained by the symptoms of another mental disorder, including fear, anxiety and avoidance of situations associated with panic-like symptoms or other incapacitating symptoms (such as agoraphobia); objects or situations related to obsessions (such as possessive compulsive disorder); reminder of traumatic events (such as in post-traumatic stress disorder); separation from home or attachment figures (such as in separation anxiety disorder); or social situations (such as in social anxiety disorder).

3.4 **Social anxiety disorder (social phobia)**

Individuals suffering from social phobia experience profound and continual irrational fears of performance in social contexts in anticipation of being negatively scrutinised, embarrassed or disgraced by some other people. The important element of social phobia is that the phobic individual is worried that he/she will be evaluated and judged as "anxious, weak, crazy, stupid, boring, intimidating, dirty or unlikable" (American Psychiatric Association 2013; Butcher et al. 2014). The person worries that he/she may display symptoms of anxiety such as withdrawal, sweating and uncertainty over his/her words, such that negative evaluation may result. Other individuals with social phobia fear that they may be rejected by others or fear

offending them. For such people, every social situation evokes intense fear and anxiety reactions. This explains why individuals who show signs of anxiety in only a few social contexts would not be classified as people with social anxiety disorder (Butcher et al. 2014).

The anxiety response in people with social phobia may vary in type and degree of intensity according to situations and contexts. For example, such people may be anxious as a result of an upcoming social event they want to attend, a condition referred to as anticipatory anxiety. There are active engagements to avoid social situations, such as refusal to attend parties or attending school for fear of negative evaluation. The anxiety is quite disproportionate to the degree of the risks posed by the real or perceived negative evaluation by others (Kring and Johnson 2013).

For a clinical classification of social anxiety disorder, the individual has to exhibit symptoms for a period of no less than six months. This is to differentiate the disorder from other temporary social fears. The individual must also be significantly affected by the disorder in the areas of his/her functioning such as academic, occupational and social relationships. He/she must experience a clinically significant suffering as a result of avoiding the social contexts. People with social anxiety disorder are more prone than people with specific phobia to have a severe disruption in their personal and occupational life (Bögels et al. 2010).

Individuals with social anxiety disorder are less confident, submissive and passive contributors to conversations. They are shy, exhibit rigid body positioning, inadequate gazing and low toned speech. Men with social anxiety disorder may stay longer without marriage or having a family while women may live their life as a homemaker or a mother despite a desire to work outside of the home. Adults with social anxiety disorder may experience associated symptoms of medical illness and because of their fear of social situations, they may resort to self-medication (American Psychiatric Association 2013).

3.4.1 Prevalence, risk factors and consequences of social phobia

Females are diagnosed more with social anxiety disorder than males in the general population with a ratio of 1:0 to 2:1; this gender difference is higher among adolescents and the young adult population. Behavioural inhibition and fear of negative evaluation are the primary traits attributed to social anxiety disorder. There is also a hereditary link to social anxiety disorder as children of parents with the disorder have been found to develop the disorder. Research has shown that first-degree relatives have higher chances of between two to six times of developing the disorder than other relatives (Kring and Johnson 2013; Butcher et al. 2014). High rate of school dropout, poor performance at school and in the workplace, and poor socio-economic status are consequences of social phobia (American Psychiatric Association 2013). The disorder causes sufferers to stay single, unmarried or divorced or living a life without children. There is also a lack of seeking treatment for this disorder among sufferers with only about half of the patient population seeking treatment after 15–20 years of suffering (American Psychiatric Association 2013).

Table 3: DSM criteria for social anxiety disorder (social phobia)

Diagnostic criteria for social phobia
•Significant anxiety regarding social situations where the person is open to evaluation by some people. •Fear that the individual will act and exhibit the symptoms of anxiety to warrant negative evaluation by others. •The social situation provokes fear and anxiety every time it is encountered. •Active avoidance and endurance with immense fear and anxiety almost always accompany the social situation. •Disproportionate fear and anxiety is always seen when considered along with the actual threat posed by the social situation. •The fear and anxiety persist for a period of six months or more. •The avoidance of the social situation causes a marked distress in the individual's social, occupational and other areas of important functioning. •The fear or anxiety is not related to the use of substances or medication. •The fear and anxiety are not related to other mental illnesses.

3.5 **Panic disorder**

Panic disorder is a sudden rush of recurrent episodes of panic attack characterised by extreme fear and anxiety with associated distress that attains to climax within a few minutes. Specifically, Craske et al. (2011) defined panic disorder as a short episode of extreme fear and anxiety where the individual exhibits at least four out of thirteen symptoms of the disorder and the symptoms' manifestation reaches their peak within ten minutes. Recurrent panic attacks appear with symptoms of anxiety such as palpitations, shortness of breath, trembling or shaking, and nausea. Other symptoms include numbness and tingling sensations, depersonalisation and the fear of death. The attacks occur for a brief period of time but are very intense and debilitating to the individual. Panic attacks are mostly unexpected and not related to specific signalling events, however, there are some that are expected. Instances are attacks that usually ensue on encountering a specific situation or event (American Psychiatric Association 2013; Butcher et al. 2013; Nolen-Hoeksema 2014), for example, if a person has social anxiety disorder he/she may experience panic attacks when asked to perform at a social event (Craske et al. 2011). Some individuals with panic disorder may experience episodes of panic attacks more frequently, e.g. daily for a week and then go for weeks without further attacks. Others may have attacks not quite as frequently but on a regular basis, such as once a week, and will continue for many months with occasions of minor attacks in-between full blown attacks (Nolen-Hoeksema 2014).

It has been estimated that about 28% of adults experience panic attacks at some point in their life, especially in periods of intense stress. The attacks are so irritating that they make the individual believe they are 'going crazy', about to die as a result of a heart attack or seizure or physical crisis (Kring and Johnson 2013). The worries about panic attacks reflect fears that the attack symbolises a life-threatening disease or fear that is associated with social concerns like being embarrassed or evaluated by others negatively because of panic episodes. A diagnosis of panic attack is warranted when the individual continues to experience the symptoms of anxiety

unexpectedly and without a precipitating event (American Psychiatric Association 2013).

3.5.1 Prevalence, risk factors and consequences of panic attack

About a 2–3% prevalence rate of panic attacks was estimated among adults and adolescent populations in Europe and the USA in a period of 12months. An estimate of 0.1% to 0.8% prevalence rate was reported among Asian and Latin American countries. The average age of the beginning of the condition in the USA is estimated at 20 to 24 years. A small number of occurrences have been found during childhood and onset at age later than 45 years is not common but can occur (American Psychiatric Association 2013).There are no observed differences in terms of clinical presentation of panic disorders between adolescents and adults. But, gender differences appear to exist as females are affected more often than males. There is a high rate of comorbidity with other anxiety disorders, depressive and bipolar disorders (Butcher et al. 2014). Temperamental factors, such as anxiety, sensitivity and neuroticism, are the major pre-disposing factors for panic disorder. Environmental stressors, smoking and experience of sexual and physical abuse during childhood are major risk factors of panic disorder. Studies have not identified a specific gene linked to panic disorder, but the general belief is that a number of genes point to susceptibility. Children of parents with panic disorder are at a higher risk of developing the disorder too (Kring and Johnson 2013; Noggle and Dean 2013)

Table 4: DSM criteria for panic disorder

Diagnostic criteria for panic disorder
A recurrent unexpected panic attack. Palpitations, pounding heart or increased heart rate. Sweating Trembling or shaking Sensations of shortness of breath or smothering Feeling of choking Chest pain or discomfort Nausea or abdominal distress Feeling dizzy, unsteady, light-headed or faint Chills or heart sensations Paraesthesia (numbness or tingling sensations) Derealisation (feeling of unreality) or depersonalisation (being detached from oneself) Fear of losing control or 'going crazy' Fear of dying At least one of the attacks has been followed by one month (or more) of one or both of the following: Persistent concern or worry about additional panic attacks or their consequences (e.g. losing control, having a heart attack or 'going crazy') Significant maladaptive change in behaviour related to the attacks (e.g. behaviours aimed at avoiding having panic attacks, such as avoidance of exercise or unfamiliar situations) The disturbance is not attributable to the physiological effects of a substance (e.g. drug abuse or medication) or another medical condition (e.g. hyperthyroidism, cardiopulmonary disorder) The disturbance is not better explained by another mental disorder (e.g. the panic attacks do not occur only in response to feared situations as in social anxiety disorder; in response to circumscribed phobic objects or situations, as in specific phobias; in response to obsessions, as in obsessive compulsive disorder; in response to reminders of traumatic events, as in post-traumatic stress disorder; or in response to separation from attachment figures, as in separation anxiety)

3.6 **Generalised anxiety disorder**

Generalised anxiety disorder (GAD) is characterised by extreme anxiety and fear related to different situations, events and objects. The extent, length and occurrence of the anxiety is quite disproportionate to the real effects of the anticipated or perceived danger (American Psychiatric Association 2013; Kring and Johnson 2013). Individuals with generalised anxiety disorder are affected by a high degree of worry and intrusion of negative thoughts pertaining to

their perceived object or situation of fear. There is difficulty in controlling and keeping the troublesome thoughts from interfering with what the individual is doing.

The manifestation of generalised anxiety disorder differs between children and adults. Among adult patients, the intense worry and fear is associated with daily routines and life events like workplace responsibilities, family members or calamities to children. Conversely, children with generalised anxiety disorder worry too much about their competence and quality of their performance. The attention of their concern shifts from one fear to another throughout the progression of the disorder (American Psychiatric Association 2013). Three major features differentiate generalised anxiety disorder from non-pathological anxiety (American Psychiatric Association 2013; Butcher et al. 2014). First, the worry is so extreme that it interferes with normal social and psychological functioning. On the contrary, worries of everyday life are not extreme–they are controllable and can be halted in the event of pressing issues. Second, the worries in GAD are so prevalent, noticeable and upsetting; they last longer and occur without any discernible precipitant. The larger the life events the individual worries about, the more likely the symptoms could meet the diagnostic criteria for GAD. Third, individuals with GAD present physical symptoms of subjective distress as a result of frequent worry and associated diminishing in social, work-related or other important areas of functioning (American Psychiatric Association 2013).

3.6.1 Prevalence, risk factors and consequences of generalised anxiety disorder

An incidence rate of 0.9% among adolescents and 2.9% among the adult population over a 12-month period has been recorded generally in the USA. In other countries, the incidence rate ranges from 0.4% to 3.6%. Females are two times at risk of developing GAD than males. People from Europe suffer GAD more than people from Asia, Africa, Latin America and the Pacific Islands. Moreover, people from more advanced nations are more likely to report symptoms of GAD than people from less advanced nations in the course of their life (American Psychiatric Association 2013). Genetic, environmental and

personality variables have been reported as risk factors in the development of GAD, for example, the DSM reported that genetic factors account for one-third of the factors in the development of GAD. The DSM did not, however, specify the gene(s) that are implicated. The role of the environment is in terms of developmental misfortunes and overprotective parenting. Personality variables such as neuroticism are the main pre-disposing factors and people with GAD suffer from excessive worrying. This affects their ability to initiate and carry out tasks more speedily and competently. The related feelings of muscle tension, tiredness, lack of concentration and sleeping difficulties all contribute to the inefficient functioning (American Psychiatric Association 2013; King and Johnson 2013).

Table 5 Diagnostic criteria for generalised anxiety disorder

Diagnostic criteria
Intense fear and worry happening for at least six months with regard to many events or actions, e.g. work or school performance. There is trouble controlling the fear. The fear and anxiety is related to at least three of the following major symptoms in the last six months: Restlessness or feeling keyed up or on edge Easily fatigued Difficulty concentrating Irritability Muscle tension Sleep disturbances The symptoms cause clinically significant distress in the person's social, occupational and other important areas of functioning. The disturbance is not attributed to substance misuse. The disturbance is not better explained by another mental disorder.

3.7 **Obsessive compulsive disorder**

Obsessive compulsive disorder (OCD)is literally defined by experiencing the intrusion of unwanted repetitive thoughts and upsetting images, generally accompanied by compulsive behaviours carried out to offset the repetitive compulsive thoughts or images (American Psychiatric Association 2013; Kring and Johnson 2013; Butcher et al. 2014). More specifically, DSM-5 pointed out that the

typical symptoms of OCD are the presence of un-pleasurable obsessions and compulsions. Obsessions are repetitive and persistent thoughts (e.g. of violent or horrific acts) or impulses (e.g. to stab someone). The individual tries to avoid these obsessive thoughts, trying to suppress their occurrence by avoiding the trigger or thought suppression. Compulsions are repetitive, ritualistic behaviours like frequent washing of hands or mental acts (e.g. repeating words silently) that the individual feels compelled to perform. The compulsive behaviour is time consuming and is estimated to last for one to three hours per day. There are individual differences in subjects, proportions and themes of their obsessions.

3.7.1 Prevalence, risk factors and consequences of OCD

There is a 1.1% to1.8% prevalence rate over a period of 12months internationally. In the USA, it is estimated that the prevalence rate is 1.2% per year. There is a slight gender difference in OCD with females slightly more affected than males in later life and males are more commonly affected than females in childhood. Males have an earlier age of onset than females in OCD (American Psychiatric Association 2013). Genetic factors in the aetiology of OCD have been reported, individuals with obsessive compulsive disorders have diminished quality of life and often experience difficulties in jobs and social relationships. This is, however, based on the degree of symptoms experienced. There is a serious health problem noticed in people with OCD for example, obsessions around contamination may cause refusal to visit hospital due to fear of germs (Maddux and Winstead 2012). The symptoms of OCD may also affect the treatment of the disorder when the patient is on medication; patients may be obsessed that the medicine is also contaminated (American Psychiatric Association 2013).

Table 6 Diagnostic criteria for obsessive compulsive disorder

Diagnostic criteria
There must be obsessions, compulsions or both. Obsessions could be in the form of any of the following: Repetitive and continuous thoughts, impulses or images that are occasionally experienced during the disturbance as unpleasant and that cause significant anxiety or distress. The individual makes efforts to disregard or reject the impulses or counteract them with supplementary thoughts. Compulsions could be in the form of any of the following: Repetitive behaviours and mental acts, such as frequent washing of hands or praying or repeating words silently. The repetitive behaviours and mental acts are meant to decrease the anxiety or the difficulty experienced. The obsessions and compulsions waste the patient's time, they might take an hour or more in a day and cause significant impairment in the individual's functioning. The symptoms are not related to substance abuse or other mental disorders.

3.8 Post-traumatic stress disorder (PTSD)

Post-traumatic stress disorder results from experiencing extreme stress or a traumatic event that caused intense fear and anxiety in the past. An experience can be regarded as traumatic if it exposes the individual to real or threatened death, severe injury or sexual violation. Others could be a violent personal attack, suicide, serious accident or injury. Traumas that can lead to PTSD are not as common and may include natural disasters such as floods, earthquakes, hurricanes and tornadoes (American Psychiatric Association 2013; Nolen-Hoeksema 2014). Human-created disasters, such as wars, terrorist attacks and torture can also precipitate post-traumatic stress disorder.

3.8.1 Prevalence, risk factors and consequences of PTSD

The prevalence of PTSD differs according to geographical regions. Twelve months' prevalence rate among the adult population in the USA is estimated at 3.5%. The prevalence rate is lower (0.5%

to1.0%) for Europe, Asia, Africa and Latin American countries. There is a higher prevalence rate among veterans and workers in high-risk occupational settings like the police, fire fighters and emergency medical personnel (American Psychiatric Association 2013).

The risk factors for PTSD are divided into pre-traumatic, peri-traumatic and post-traumatic factors. The pre-traumatic factors include temperamental factors such as mental disorders and childhood emotional disturbances. Lower socioeconomic status, education and prior exposure to traumatic events are some variables that predispose one to PTSD. Genetic risk factors include female gender and the age at which the traumatic event was experienced. While the peri-traumatic risk factors are related to the environment, the magnitude of the environmental factor causing the trauma counts in this regard. The greater the magnitude of the event the greater the traumatic experience. The post-traumatic factors include negative appraisal of the situation as well as poor coping resources and style (Maddux and Winstead 2012; American Psychiatric Association 2013).

Table 7: Diagnostic criteria for post-traumatic stress disorder (PTSD)

Diagnostic criteria
Exposure to real or vulnerable death, severe injury or sexual violence in any of the following ways: Direct experience of the traumatic event. Witnessing the event as it occurs to others. Learning that the traumatic event occurs in people very close, e.g. family members or friends. Undergoing recurrent or extreme exposure to aversive details of the traumatic events. Presence of any of the following symptoms associated with the traumatic events: Repetitive involuntary recall of the traumatic event. Recurrent distressing dreams with contents related to the traumatic event. Flashbacks in which the individual feels the traumatic event is happening again. Prolonged psychological distress at exposure to any cue that resembles the traumatic events. Significant physiological reactions to such cues that resemble the traumatic events. Persistent escaping of stimuli related to the traumatic event, starting just after the occurrence of the event in any of the following ways: Avoidance of upsetting memories, thoughts or feelings about the event. Avoidance of external reminders, such as people or the setting where the event had occurred. Negative mood and cognitive swings related to the traumatic events. Significant arousal and reactivity related to the traumatic event beginning and after the event. The disturbance should last more than one month. The disturbance causes distress in social, occupational and other areas of the individual's functioning. The disturbance is not related to substance abuse or other psychological disorders.

3.9 **Summary of the chapter**

Chapter 3 presents information on anxiety as a psychological disorder. The chapter aims to acquaint the reader with the different types of anxiety disorders such that they will come to terms with anxiety disorders, the knowledge of which will enable them to appreciate pre-operative anxiety. For each of the anxiety disorders described in the chapter, a detailed explanation of its symptom manifestation, prevalence, effects, and risk factors and how it affects male and female patients in the general population is presented. There is also a section containing a detailed description of symptoms necessary to be seen in a patient so as to warrant a diagnosis of the disorder.

The latest edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), distinguishes six different primary types of anxiety disorders. They include, specific phobias, social phobias, panic disorder, generalised anxiety disorder (GAD), obsessive compulsive disorder (OCD) and post-traumatic stress disorder (PTSD). These disorders share some common features even though they are different. Genetic and environmental factors have been implicated in causing anxiety disorders. Some structures of the brain, such as the limbic system and cerebral cortex, have also been found to play significant roles in the development of anxiety disorders. Gamma-amino-butyric-acid (GABA), norepinephrine and serotonin are the major neurotransmitters implicated in almost all types of anxiety disorders. Psychological factors such as classical conditioning of fear, anxiety and panic, faulty cognition, distorted perception, lack of control of one's environment and emotions have been reported as the major factors responsible for the development of anxiety disorders. Finally, studies have shown that individuals suffering from one form of anxiety disorder or another are more at risk of developing and experiencing a higher degree of pre-operative anxiety whenever they face surgical operation.

4 CHAPTER FOUR: METHODOLOGY

4.1 Introduction

The aim of this chapter is to present the philosophical position of the researcher, and the ontology, epistemology and methodology of the research. This is followed by a discussion on mixed methods, the reasons for choosing mixed methods and the strengths and limitations of mixed methods. Other sections cover the research design, sampling, description of participants, inclusion and exclusion criteria, and approach the methods of data collection and analysis. The chapter ends with a discussion of the ethical issues guiding the study.

4.2 Ontology, epistemology and methodology

The philosophical foundation for any research is based on the ontological and epistemological standing of the researcher. While ontology relates to beliefs about the nature of reality, epistemology is concerned with the nature of knowledge and how knowledge is acquired. In short, epistemology is concerned with ‘what we know’ and ‘how we know what we know’. Research philosophy is therefore an important aspect of scientific research. Jonker and Pennink (2010) defined research philosophy as a set of basic assumptions and viewpoints, encompassing how we perceive the world and therefore providing a framework for thinking that directs our behaviours as we conduct scientific research. Creswell (2013) insists that, for any research project, it is imperative to begin by identifying the research paradigm to be used as this affects how the study is undertaken and what type of data is to be collected to help understand the phenomenon under investigation. Similarly, Flowers (2009) argued that philosophy describes beliefs, traditions, expectations and the nature of truth. These elements affect how the research is carried out; therefore, it is important to understand philosophy so that methods

consistent with the aims of the study and the questions the researcher is seeking to answer are adopted, and to make sure that researcher biases are understood and reduced.

In the context of the present study, the researcher intends to approach the research questions and objectives from the positivist and constructivist philosophies. The following discussions focus on positivist and constructivist paradigms and their ontological and epistemological positions before finally discussing pragmatism as the philosophy of choice guiding the conduct of this research.

4.2.1 Positivism

Positivism is a research paradigm that dominated scientific inquiry up to the middle of the 20th century. Positivists believe (ontologically) in the existence of absolute truth and that there is a single and independent reality that can be objectively studied and measured. In their approach to investigation, positivists emphasise the use of an empirical and systematic approach to gaining knowledge of the world and therefore use the principle of verification to test hypotheses (Neuman 2011). Positivists design experiments, collect quantitative data and statistically test hypotheses so as to arrive at conclusions that can be generalised to other situations or contexts (Creswell 2009; Wahyuni 2012). Positivist researchers undertake value-free study to quantify phenomena. They believe that researchers studying the same real problem will arrive at the same or a similar outcome if they carefully use the same research process in investigating the problem and use statistical methods in analysing data collected from a large population (Creswell 2013).

Positivism has been criticised for its attention to objective reality and for not recognising subjective understandings of social phenomena from participants' points of view (Hasan 2014). Critics of positivism believe that human behaviours are complex and have several meanings. Therefore, strict adherence to quantitative methods as emphasised by positivists may encourage the belief that complex human actions can be reduced to simple behaviours, whatever their complexities. Critics have pointed out that conducting research by

strictly following a scientific model may lead to considering research as not an important means of understanding the complexity of the real world. Another major criticism of positivism is the emphasis on complete detachment of the researcher from the research process. It is generally believed that investigators and what they investigate are linked in many ways: investigators' attitudes, experiences, knowledge and beliefs are key variables that can influence the studies they conduct in many ways (Creswell 2009).

In this study, the researcher understands that it is practically impossible to be completely detached from the research participants, who are overwhelmed by fear and anxiety while facing surgery. Their emotional reactions are likely to influence the research process; however, by taking a pragmatist's stance to guide the study, the researcher maintains that there is an obvious need to find the 'truth' about the participants' experiences and understanding of the effects of non-pharmaceutical intervention in reducing pre-operative anxiety. This can be achieved through collecting data using a variety of approaches.

4.2.2 Constructivism

Constructivism is the research philosophy that believes (ontologically) that reality is a product of human social construction. Researchers grounded in this philosophy place the research participants at the centre of the study by relying on their views of the phenomenon under investigation. Researchers who subscribe to constructivist philosophy therefore try to understand the truth of others by way of thorough investigations of their experiences (Doyle et al. 2009). This is in line with one of the major aims of this research, which is to determine and establish the Hausa-speaking elective surgical patients' preferred non-pharmaceutical intervention to be used in reducing their pre-operative anxiety.

According to Hennink et al. (2010), in order to understand a particular social action or experience in terms of the subjective meaning that people attribute to it, researchers must interact with the research participants through dialogue so as to clearly understand the meaning

of the actions or experiences they are investigating. Constructivism as a philosophy guides one part of this study, the interview method, which provides the researcher with the opportunity to minimise distance from the participants and interact with them through the interview process so as to discover the truth based on the participants' construction.

Constructivism has been criticised because of its belief in and emphasis on seeking a full and more 'meaningful' understanding of social phenomena from the perspective of different individuals whose attitudes and experiences are quite different (Creswell et al. 2011). This shortcoming reduces the acceptability of constructivism as it is limited in producing reliable data, a criticism that arises from the subjectivity of the paradigm. Because constructivism places great importance on, and relies heavily on, subjectivity to understand how people construct their meaning of the world, there is a risk that participants will give inconsistent and unreliable accounts of their experiences to describe the phenomena under investigation (Nudzor 2009).

4.2.3 Pragmatism

Pragmatism is a research paradigm that does not belong to any single philosophical position. For this reason, pragmatism remains the only research paradigm that declines to take part in the so-called paradigm war between positivist and interpretivist research philosophers. Rather than asking questions about ontology and epistemology, research questions and hypotheses are the first and major determinants of pragmatists' research framework (Wahyuni 2012).

Pragmatists oppose the notion of the incompatibility of quantitative and qualitative research and advocate a combination of the two approaches to achieve a better and comprehensive understanding of the phenomenon under investigation (Onwuegbuzie et al. 2009).Feeler emphasised the fact that pragmatists are against dualism: they query the separation of positivism and constructivism and call for the coming together of quantitative and qualitative

methods, stressing the similarities of the two methods in terms of their epistemological and ontological grounds and concluding that they are the same in approaching research problems. Robson (2011) suggested that to be pragmatic is to believe in real matters and valuable experiences rather than clinging to theoretical positions as the guiding principles for research. Real-world researchers agree with this view as they strive to find solutions to research problems in a more rigorous manner. Hanson further argued that the differences between phenomena as objective or subjective are mainly the effects of political differences between social scientists.

Onwuegbuzie et al. (2009) added that researchers adopting the pragmatic philosophy can maintain separate research paradigms that can be combined or joined with another research paradigm (i.e. mixed methods research).In this study, by taking a pragmatic stance, the researcher intends to use mixed methods to collect both quantitative (numerical) data and qualitative (descriptive/narrative) information to answer the research questions. According to (Shaw et al. 2010), the combination of qualitative and quantitative inquiry offers an opportunity to gain a better understanding of the phenomenon under investigation that would be difficult to achieve through either method in isolation. This offers a unique benefit in studies on health and health services delivery, particularly those designed to test the effectiveness or establish the usability of interventions (Shaw et al. 2010).

Pragmatism has been criticised in the literature because of its adherents' failure to adopt a single philosophical or theoretical stance on research. While pragmatism claims to use combined methods to investigate social issues, its proponents have been challenged as being unable to engage in epistemological debate about what constitutes this kind of philosophy, how social reality is constructed and how knowledge is gained in accordance with this philosophy (Nudzor 2009)

4.3 **Method**

4.4 Mixed methods design

Creswell et al. (2011) defined mixed methods as a research strategy that adopts rigorous qualitative and quantitative methods of investigations to study a given research problem. Researchers employing mixed methods designs are guided by the belief that, to understand the world, data collection must be based on research questions/hypotheses and not philosophical or theoretical perspectives.

4.4.1 Reasons/ rationale for choosing a mixed methods design in this research

This research is designed to be undertaken in three phases. Phase one is designed to translate and perform cross-cultural validation of an already existing questionnaire. The data collected for this phase is quantitative data as the translated questionnaire was administered to the participants to collect numerical data used in computing the psychometric properties of the translated scale. Phase 2 of the study collected data on the prevalence of preoperative anxiety among patients undergoing elective surgery using the translated and validated Amsterdam Preoperative Anxiety and Information Scale Hausa version (APAIS-H). Phase two also required the collection and analysis of quantitative data. Phase three on the other hand sought to find out what non-pharmaceutical preoperative anxiety reduction interventions would elective surgical patients prefer to be used in reducing their preoperative anxiety as they plan to undergo elective surgery. Open ended interview method was used in this phase to collect qualitative data. Therefore, the research questions and objectives of the study warranted the adoption of a mixed methods design to collect data for the research. A mixed methods research design permits the collection of numerical data (e.g. using standardised instruments) and written information (e.g. interviews, narrative accounts or document analysis) so that the end product is a mixture of quantitative as well as qualitative information to better explain and understand the phenomenon under investigation (Driscoll et al. 2007; Johnson et al. 2007; Doyle et al. 2009; Creswell et al. 2011).

4.4.2 Strengths of mixed methods design

Creswell et al. (2011) highlighted the strengths of mixed methods research by describing it as a research strategy that allows the "integration of multiple forms of data" in which researchers deliberately combine quantitative and qualitative data to make best use of the strengths and decrease the limitations of each type of data set. Similarly, Doyle et al. (2009) added that, when a mixed methods approach is adopted, the weaknesses of each approach are neutralised while their strengths are capitalised on. This leads to clearer understanding of and the drawing of better inferences from the data collected. This attribute of mixed methods research helps the researcher to answer the research question in ways that could not be achieved by either quantitative or qualitative methods alone.

4.4.3 Limitations of mixed methods design

The mixed methods design requires researchers to be highly aware of all the methods to be employed in the study. Doyle et al. (2009) pointed out that employing a mixed methods design in a single study means that the researcher has to possess knowledge of both qualitative and quantitative approaches and also knowledge of how to integrate these methods in order to achieve a good research outcome. This is somewhat difficult as researchers tend to cling rigidly to one method than another, therefore learning only the procedures for data collection and analysis based on their chosen method.

4.5 Sampling approach

Sampling is the method of selecting a section, portion or part that adequately represents the population targeted by a researcher for investigation. It involves deciding on the number of participants to be selected (sample size) to achieve a significant result. Sampling is a crucial stage in the process of conducting research as it is a factor in the quality of the data to be generated, which also determines the quality of the conclusions to be made by the investigator. Thus, a poorly selected sample in a study would lead to poor or inferior quality results and therefore poor-quality conclusions. Methods of sampling

differ by study and according to the methodology and the paradigm chosen to guide the research. Sampling is very straightforward in research employing either a quantitative or a qualitative approach. For example, there are two different sampling approaches compatible with either quantitative or qualitative methods: random sampling is more aligned with the quantitative paradigm while non-random sampling goes with qualitative research (Onwuegbuzie et al. 2009). This is not the case with researchers employing mixed methods. In mixed methods studies, researchers find the decision on sampling methods to be very complicated because the sampling scheme for mixed methods research has to be designed for both the quantitative and the qualitative aspects of the research (Johnson et al. 2007).

4.5.1 Multilevel sampling design

A concurrent mixed methods design, using the multilevel sampling method, to collect quantitative as well as qualitative data was used in the present study. According to Onwuegbuzie and Collin (2007), a multilevel sampling relationship requires the recruitment of more than one set of participants, selected for different levels or phases of the research. This type of mixed methods sampling design is used in situations where one phase or stage of the study (for example, the quantitative stage) involves the enrolment of for example, students, and a further stage of the study (for example, the qualitative stage) involves the enrolment of for example, their lecturers (Onwuegbuzie & Collin 2007). This sampling approach fits well with the present study as more than two sets of participants have been utilized. Phase 1 of the study involves translation of the questionnaire (APAIS). For this phase, professional translators have been recruited. Phase 2 involves collecting data on prevalence of preoperative anxiety using translated questionnaire; for this purpose, elective surgical patients as well as surgical service providers will be recruited as the participants. Phase 3 and Phase 4 of the study will use only elective surgical patients.

Table 8: Sample for the different phases of the study

Phase	Participants	No. of participants
Phase 1	Professional forward and backward translators	3
Phase 2	Elective surgical patients	30
Phase 3	Elective surgical patients	30

4.6 **Study design**

The overall purpose of this study is to develop a non-pharmaceutical intervention based on patients' preference to be used in reducing pre-operative anxiety in patients undergoing elective surgery. To achieve this, a multiphase mixed methods design was employed to implement the study. The following are the phases through which the study was conducted.

4.7 ***Phase 1:*** **Translation and validation of the APAIS into the Nigerian Hausa language:**

Phase 1 of this study is about the translation of the Amsterdam Pre-operative Anxiety and Information Scale (APAIS) into the Nigerian Hausa language.

4.7.1 **Rationale/Justification for phase 1**:

The rationale for translation the Amsterdam Preoperative Anxiety and Information Scale (APAIS) is to provide the questionnaire in Hausa language, the language mostly spoken by the target population of this study who are predominantly illiterate and therefore cannot read and understand instrument written in any language other than Hausa. Harkness et al. (2011) observed that, a fundamental reason for adapting and translating a previously validated and published questionnaire in different languages is to have the questionnaire in a language it does not previously exist and to enable international comparisons, thus serving as a control of sorts. Cha et al. (2007) also noted that the need to collect data from different cultural settings

in clinical trials about the effectiveness and success of procedures and medications explains the rise in demand for translated instruments, much less the need for such instruments.

The Amsterdam Pre-operative Anxiety and Information Scale (APAIS) translated in this study is a short self-reporting measure used to measure pre-operative anxiety in patients undergoing surgical operation. It was developed by (Moerman et al. 1996) out of an understanding that what has been used as the gold standard for measuring pre-operative anxiety, the state-trait anxiety inventory (STAI), is too long, consisting of 42 items that are not related to anxiety specific to surgery. The STAI is therefore not a suitable scale for use in a crowded outpatient setting or on pre-operative patients.

The APAIS was chosen as the instrument to be used in measuring pre-operative anxiety in the target population of this study, however, the APAIS was developed and validated in a culture entirely different from the culture in which this study was designed to be undertaken, hence the need for the translation.

4.7.2 Aim of the translation

The aim of the translation of the APAIS is to have a Hausa-language version of the questionnaire that is equivalent in content; meaning and ease of understanding to the original questionnaire, such that even patients with lower levels of education can read, understand and respond to it. To achieve this with a high level of accuracy, standard frameworks for linguistic translation of questionnaires (International Test Commission 2010; Acquadro et al. 2012) ware used as models. These are internationally accepted frameworks that consist of the following steps for linguistic translation and validation of instruments.

4.7.3 Step 1: Forward translation

Forward translation is defined as the translation of a questionnaire into a language other than its language of origin. In the context of this study, forward translation refers to the translation of the APAIS from an English-language version to a Hausa-language version. According to the Mapi Research Institute’s translation manual, the original language of the questionnaire is referred to as the source language,

while the language to which the questionnaire is translated is referred to as the target language (Acquadro et al. 2012).

4.7.3.1 Participants/resources needed for forward translation

For a good forward translation of a questionnaire into a target language, the frameworks for translation of questionnaires suggest the involvement of the following:

- Two professional translators, native speakers of the target language; both of them also fluent in the source language.
- Project manager/the researcher.

4.7.3.2 Recruitment of professional translators

Two professional translators for forward translation have been contracted to undertake the forward translation of the APAIS into Hausa language.

Forward Translator 1 (FWT1) currently works with the BBC Hausa service and has been involve in translating English language texts in to Hausa language for more than 15 years.

Forward Translator 2 (FWT2) is a university senior lecturer in the department of English language who has been teaching both English and Hausa Languages for over two decades.

4.7.4 Methodology for forward translation

Each of the two independent translators separately produced his own forward translation of the questionnaire (items and instructions as well as response choices). After their translations, both the researcher and the translators met to discuss and reconcile the two separate translations. The aim of the meeting was to agree and produce a combined version (Version 1) that is conceptually equivalent to the original source-language version, produced in simple and easy-to-understand Hausa language.

At this stage, changes were made by the translators to ensure that words and phrases that are difficult to translate into the target language are translated in such a way that the conceptual meaning of the original questionnaire is maintained. This was followed by the

production of the first reconciled Hausa version of the instrument and the production of a report in English to document and explain all the processes involved in Step 1, what was discussed, and how the reconciliation of the two forward translations was achieved.

4.7.5 Step 2: Backward translation

Backward translation, here, refers to the process of translating the reconciled forward-translated (Hausa-version) questionnaire back into the source language. It therefore literally means the translation of the first Hausa version of the questionnaire back into the English language.

4.7.5.1 Participants/resources needed for backward translation

According to the frameworks for translation of questionnaires, this stage requires the recruitment of one professional translator who is a native English speaker and also fluent in the target language.

4.7.6 Methodology for backward translation

The backward translator translated the Hausa version of the instrument produced in Phase 1 back into its original English language. To achieve a high degree of accuracy in the backward translation, the backward translator was not allowed access to the source version of the instrument.

The researcher met with the backward translator to compare the backward-translated version with the original source-language version. This was to enable them to see if there were any mistranslations or misunderstandings in the Hausa version. The involvement of healthcare experts (expert committee), fluent in both the source and target languages, who are also knowledgeable in the key variables the instrument is designed to measure, was an added advantage. Experts at this level helped in refining the translation in the case of any perceived difficulty.

The next stage was the production of the second version of the instrument and the writing of a report in English to document what was discussed during the meeting with the backward translator and

the way in which the second version of the questionnaire was arrived at.

4.7.7 Step 3: Patient-testing

The aim of this stage was to administer the translated Hausa version of the instrument to a sample of participants (elective surgical patients) to ascertain whether the translation is clearly understood by the patients. The focus of testing at this stage is to find out two important things:

1) To ascertain the conceptual and semantic equivalence of the instrument in relation to its items, instructions and response choices.
2) To ascertain the patients' understanding of the items, the instructions and the response choices. Any problems with the administration of the questionnaire at this stage ware also noted.

4.7.8 Procedure for patient-testing of the questionnaire

The Mapi Institute's manual for translation of questionnaires states that patient-testing of a translated instrument has to be done by a panel of at least five patients. Therefore, in accordance with this guideline, the translated Hausa version of the APAIS obtained after the second phase of the translation process was administered to a sample of five elective surgical patients at a tertiary health facility in Nigeria. The five patients are adults, 18 years and above, native speakers of the target language, and able to give informed consent and to read and understand written Hausa text. The instructions for the questionnaire, the items and the response format ware placed on a 5-point Likert scale, ranging from 1 (totally not understood) to 5 (well understood). The participants ware therefore requested to scale their understanding of the entire translated scale. The scaling is to find out whether the patients or respondents have difficulty understanding the scale. The report has been written in English to document the process of patient-testing of the second version of the translated questionnaire; any difficulty encountered, either in terms of administration or in understanding the items of the questionnaire, ware all documented. Finally, following this process, the final Hausa version of Version 3 of the translated APAIS has been produced. This

version is to be administered to the target population of the research project – that is, patients undergoing elective surgical operation.

4.8 Establishing the cultural validity of the Hausa version of the APAIS.

The phrase ‘cross-cultural validation’ refers to the process of considering issues about linguistic and cultural alteration in the course of adopting an instrument to be used in a culture other than the culture of its origin.

Pilot-testing, which also refers to pre-testing, is a small trial of the questionnaire to determine how well the sample of the population on which the questionnaire is pilot-tested understands the items, the instructions and the scoring format of the instrument. Pilot-testing a questionnaire consists of the recruitment of a small number of participants, drawn from the population for whom the questionnaire was designed to be used (service users), in order to assess the appropriateness of the items and how well the participants comprehend them.

According to the international test commission and Mapi Research Institute's frameworks, a sample of 5–10 participants is enough for pilot-testing a questionnaire. For the purpose of this study, 30 participants between the ages of 18 and 70 years of age, who were scheduled to undergo surgery, able to give informed consent and with no history of hypertension and high blood pressure were recruited and participated in pilot-testing the translated Hausa version of the instrument. There were equal numbers of male and female participants in the pilot test sample.

Table 9: Inclusion and exclusion criteria for service user participants

Inclusion criteria	Exclusion criteria
Patients undergoing elective surgery	Patients not undergoing elective surgery
Above 18 years of age	Below 18years of age
Patients with no previous history of surgical operation	Patients with previous history of surgical operation
Ability to give informed consent	Inability to give informed consent
No history of hypertension and high blood pressure	History of hypertension and high blood pressure

4.8.1 Recruitment process

In the hospital setting where the study was conducted, surgical operations are performed twice a week – that is, on Tuesdays and Thursdays. Patients on the waiting list arrive at the hospital on Mondays and Wednesdays to receive instructions about their operations and other necessary pre-operative preparations. The operations take place from 11.00am to 5.00pm, depending on the number of cases available. To recruit a patient to participate in the study, the researcher was given a table in the consulting clinic where patients on the waiting list come to see the nurses or surgeons a day before their scheduled surgical operations. After meeting with their

surgeons or nurses, as the case may be, a staff nurse working with the researcher informed the patients about the research. Patients who agreed to participate were enrolled into the study. Identification numbers were given to them. Consent forms and information sheets containing details about the research and what was required as they participated in the study were also given to them to read and sign.

4.8.2 Administration of the questionnaire

Each of the selected participants was given the translated Hausa versions of the questionnaire in the evening before their scheduled surgery to read and score himself/herself.

4.8.3 Assessing validity

Validity is the extent to which a measure or questionnaire measures what it is supposed to measure(Hayes 2000). This includes the following aspects:

4.8.3.1 ***Face validity***-

Face validity is a reflection of the extent to which a measure assesses what it is intended to measure. ***It is*** the perceptions which the participants being assessed or the individuals administering the measure have about it Hayes (2000). The rationale for face validity assessment of the translated APAIS-H was see how well the participants and experts in the field of surgery and anaesthesia would understand the translated Hausa version of the APAIS. According to Hulin (1987) and Radley et al. (2006). psychometric testing of questionnaires demands an assessment of face validity, often employing qualitative methods to ascertain levels of understanding and comprehension, relevance and meaning of the items of the instrument. Researchers must therefore guarantee that the scale items totally reflect the construct they are designed to assess. Face validity assessment is essential because inferences are to be made on the bases of the final scale items. Therefore, these items must be deemed face valid in order to be confident in the inferences drawn using the final scale form Hardesty and Bearden (2004). However, according to Streiner et al. (2015) if items from an instrument have no face validity, the measure cannot be a valid operationalisation of the

construct of interest. Hence, face validity is a necessary but not sufficient condition for ensuring construct validity. In the present study, face validity assessment has been performed by experts in the fields of surgery, anaesthesia and surgical nursing, who are fluent in both the source and target languages. They read through the translated version of the questionnaire, to evaluate whether the items of the questionnaire captured the topic being investigated. Their task also included checking for common mistakes such as confusing or leading questions in the translated version. They found the translated items to be relevant to the construct the instrument was designed to measure. However, some suggestions were offered with regards to certain items and these were used to refine the instrument before the final version was produced. See page validity

4.8.3.2 ***Content validity***-

The rationale for content validity assessment in the present study is based on its strengths which hold that what a test seeks to measure constitutes a content domain and the items on the test should sample from that domain in a way that makes the test items representative of the entire domain (Zamanzadeh et al. 2015). According to (Hayes 2000) content validity can be defined as the ability of the selected items to reflect the variables of the construct in the measure. Content validity is frequently addressed in academic and vocational testing (Zamanzadeh et al. 2015), where test items need to mirror the knowledge required for a given construct or topic area. In clinical settings, content validity is done to establish consistency between test items and the symptom content the disorder the scale is meant to measure. Content validity therefore aimed at addressing the degree to which items of the instrument sufficiently represent the content domain. It also answers the question that to what extent the items an instrument or the entire instrument is a comprehensive representation of the content area (Polit and Beck 2006). This type validity provides the preliminary evidence on construct validity of an instrument (Polit et al. 2007). In addition, it can provide information on the representativeness and clarity of items and help improve an instrument through achieving recommendations from an expert panel

(Polit et al. 2007). If an instrument lacks content validity, It is impossible to establish reliability for it Nunnally and Bernstein (1994). Conducting content validity assessment requires engaging known subject matter experts to appraise whether test items measure the definite content. It consists of rigorous procedure than does the assessment of face validity. Based on this understanding, Content validity assessment was carried out in the present study by a team of experts consisting of surgeons, anaesthetists and surgical nurses.

4.9 **Data analysis**

Descriptive statistics have been used to summarise the demographic variables of the participants used for pilot-testing. Summary tables showing the percentages of the participants' understanding of the translated items, response format and the instructions of the questionnaire were produced along with bar graphs using the statistical software SPSS to present the participants' scores for item understanding.

4.10 **Phase 2** undertaking a survey using the translated and validated APAIS to establish the prevalence of pre-operative anxiety among Hausa-speaking patients undergoing elective surgery in Nigeria

4.10.1 **Rationale/justification for phase 2:**

Preoperative anxiety is a serious problem among surgical patients. There is paucity of data about the prevalence of preoperative anxiety among the Hausa speaking surgical patients. Research on the prevalence of preoperative anxiety will provide information on the burden of preoperative anxiety in the population investigated in the part of Nigeria where the study was conducted. Counts of the number of patients affected with preoperative anxiety are required to plan appropriately for their health care needs. Prevalence estimates are useful clinically by providing context for diagnostic decision-making. Knowing that preoperative anxiety is much more common among surgical patients, data on prevalence of preoperative anxiety can also be used to compare the burden of preoperative anxiety across locations, time periods or surgical cases. The data can be used to

sort patients into highly anxious, moderately anxious and non-anxious patient groups so that interventions appropriate to the patients' levels of anxiety can be offered to help the patients.

4.11 **Phase 3-** establishing the preferred approach to non-pharmaceutical anxiety reduction strategies among Hausa-speaking elective surgical patients in Nigeria.

4.11.1 Justification for phase 3

In patients presenting with pre-operative anxiety, it is currently unknown how clinicians and the patients deliberate and exchange relevant information about the problem and it is also not known whether the clinicians consider (or are ready to consider) their patients' preferences before or during pre-operative anxiety reduction intervention sessions. Given the fact that pre-operative anxiety is not an illness per se for which the surgery is planned, but a problem that has the capacity to affect the entire surgical process thereby reducing the patients' overall satisfaction with the surgery, discussion about how best to treat such anxiety between the clinicians and surgical patients is very important.

At present, no study has been conducted to find information on surgical patients' preferences of non-pharmaceutical interventions for reducing their pre-operative anxiety before undergoing elective surgical operation. Phase 3 of this study was undertaken to investigate Hausa speaking surgical patients' preferences of non-pharmaceutical interventions for reducing their pre-operative anxiety before undergoing elective surgery.

4.12 Ethical issues

Ethics simply refers to a regulation of conduct; a responsibility to conform to; a code or set of established principles and guidelines for practice. Researchers in medicine and healthcare are always urged to strongly adhere to ethical principles where ethical decisions are taken in recognition of the effects of research on the subjects or participants or on the bases of what Beauchamp and Childress (2001) described as the principles of beneficence, non-maleficence, autonomy and justice. Consideration of ethical principles in healthcare research is based on ensuring researchers' obligations to protect the rights and respect the research subject's commitment to knowledge and to encourage respect for science (Robson 2011).

Against this background, researchers are urged to design and conduct their research in such a way that the participants are protected from physical and psychological harm. This means that no participant is to be distressed because of their participation in the research. Researchers are also urged to stay away from any form of deceptions and lies to research participants throughout the research process(Robson 2011). Participation in research should always be voluntary. Therefore, it is necessary for research participants to provide their written informed consent. The principle of confidentiality must be strictly adhered to. Under no circumstance (or unless required by law) should the information provided by research participants be exposed to any third party without the prior approval of the individual research participants. The same principle applies to the identity of the research participants.

4.13 Ethical Approvals

Ethical approval for this study was obtained from two institutions- the University of Bradford Uk where the researcher is studying and the Federal Medical Centre Nguru, Yobe State, Nigeria where the study was conducted. In both cases, application for ethical approval was submitted to the ethical committee of the institution concerned. After scrutinising the method intended to be used in the study and having satisfied all the ethical requirements of the institutions, formal ethical

approvals were granted for the researcher to undertake the study, see appendix 7 and 10 for the ethical approval letters.

4.14 Ethical principles

The British Psychological Society has provided four ethical principles as the key areas of obligation in which ethical issues are considered (British psychological society 2009). These are discussed briefly hereunder and a discussion of how this principle will be observed in this study is also presented.

- Respect for the research participants
- Informed consent
- Responsibility
- Integrity

These principles will be used to guide the conduct of this research.

4.14.1 Respect for the research participants

The principle of respect entails that researchers must honour their participants. An important aspect of respect for participants is associated with the information provided by the participants. Research participants to be recruited for this study will be assured of the confidentiality of the information they provide before being asked to sign their consent to participate. Throughout the process of this research, the information supplied by the participants will remain confidential and anonymous so long as their consent to share such information has not been obtained; and their names will not be used in any part of the research report. According to the British Psychological Society, any breach of participants' confidentiality and reasons for doing so must be documented in the research report (British psychological society 2009).

4.14.2 Informed consent

Another important component of the principle of research ethics is informed consent. This entails that research participants must be provided with adequate facts about the research to allow them to make decisions about their participation in the study. This principle will be strictly adhered to in the present study. For any participant to

be enlisted in the study, adequate information regarding the purpose and aims of the study, voluntary participation and withdrawal from the study, what it takes to be a participant and how the data will be handled, have all been clearly explained to the potential participants in an information sheet given to the participants prior to obtaining their written informed consent. The consent form along with the information sheet was given to each participant to take read and understand before they voluntarily sign their consent. The researcher understands the fact that it is not easy to provide full information to research participants to enable their participation. However, Ritchie et al. (2013) suggested that researchers must ensure that the brief information they provide to participants must be explicit enough to allow for their decision to take part in the research.

4.14.3 The principle of responsibility

The principle of responsibility is related to researchers valuing their research participants and the general public by not afflicting physical or psychological pain and abuse of participants in whatever form. Beauchamp and Childress (2001) described this as the principle of non-maleficence. This study contains minimal or no risk to the participants as it involves the administration of a short questionnaire, a brief face-to-face interview to collect information from the participants with the aim of finding out which non-pharmaceutical intervention for reducing pre-operative anxiety patients awaiting elective surgery would prefer to be used in decreasing their pre-operative anxiety. However, a couple of potential risks have been envisaged, such as the likelihood that the participants might become anxious when asked to provide information on the aspect(s) of the surgery they fear most. The researcher will be very observant of each participant as they respond to this question to detect any sign of fear or distress. In case anything is detected, the researcher will end the interview immediately and the participant will be referred for psychological support services to resolve the problem.

Another important part of the principle of responsibility stipulated in the code of ethics and conduct (British Psychological Society 2009),

is ‘debriefing of research participants’. At the end of collecting information from the research participants, the researcher will debrief them to clear up any misconceptions, re-emphasise the outcome of the research and the confidentiality of the information they provide so as to allow them to return to the state at which they were before the beginning of the study.

4.14.4 The principle of integrity

The final principle is that of integrity. This principle entails avoiding deception of whatever form. It is the duty of a researcher to be honest with the research participants during the process of data collection and in transmitting the research findings (British psychological society 2009). Equally important is the researcher refraining from initiating or engaging in any form of relationship (romantic or sexual relationship) with research participants.

4.14.5 Voluntary participation

Participation in this research is completely voluntary and participants reserve the right to discontinue participation at any stage of the study without giving any reasons. If they withdraw from the research, all information they provided will be removed from the study. For service user participants, their decision will not in any way affect the care they receive in the hospital.

4.14.6 Data storage and protection

This information collected for the purpose of this study will be processed, stored and protected in accordance with the requirements of law, data protection act 2017 (Carey 2009). The law states that all information collected from research participants must be kept strictly confidential. Also, interviews conducted with participants should not be stored with their names to avoid identifying them. The law also states that data should be protected in accordance with the following eight principles (Carey 2009):

- ✓ Data should be fairly and lawfully processed
- ✓ Processed for limited purposes
- ✓ Adequate, relevant and not excessive
- ✓ Accurate and up to date

- ✓ Not kept for longer than is necessary
- ✓ Processed in line with your rights
- ✓ Secure
- ✓ Not transferred to other countries without adequate protection

These principles will be strictly adhered to in handling data for this research.

4.15 **Summary of the chapter**

The philosophical and methodological positions adopted by the researcher in conducting the present study followed the questions set to be answered by the research. The research consists of three different phases, each requiring a different method of data collection. This warranted the choice of pragmatism as the research philosophy and mixed methods as the method of data collection. This ensured that the methods of data collection and analysis remained in line with the selected paradigm and philosophical perspective.

To select the participants for the study, a concurrent mixed methods design, using the multilevel sampling method to collect both quantitative and qualitative data for the different phases of the study was used. Participants who satisfied the inclusion and exclusion criteria were carefully selected; bearing in mind the British Psychological Society's (BPS) approved ethical standards for conducting scientific research.

For phase 1 of the study, the participants recruited are professional translators and elective surgical patients. The former were contacted individually via telephone, the latter were recruited in the hospital. Other participants that took part in Phase 1 are nurses, anaesthetists, surgeons and one language expert who performed the expert panel review. The experts, except the language expert, were also recruited in the hospital. Participants for Phases 2 and 3 of the research were all selected in the hospital. All participants voluntarily agreed to participate and signed their consent before participation.

5 TRANSLATION AND CROSS-CULTURAL VALIDATION OF THE AMSTERDAM PRE-OPERATIVE ANXIETY AND INFORMATION SCALE (APAIS) INTO THE NIGERIAN HAUSA LANGUAGE

5.1 Introduction

There has been a gradual increase in multicultural clinical health research (Dean et al. 2011; Epstein et al. 2015). This has created higher demands for adaptation and translation of instruments to help in assessment, evaluation and aggregation of findings across different cultural groups. Healthcare researchers are now putting more emphasis on comparisons of interventions in order to draw inferences from the results of studies conducted in different parts of the world (World Health Organization 2010). To satisfy the need for this internationalisation of healthcare research, assessment tools and the methodologies used to collect data must be designed in such a way that the data they generate are valid and reliable.

Questionnaires are important tools for collecting health information about prevalence of diseases, measuring the success of interventions and assessment of outcomes. However, questionnaires are not developed for universal use because of the cultural diversity and language differences in the global community. Most of the questionnaires used in health research and clinical practice are designed and developed in certain countries and therefore designed in the language mostly spoken in those countries (Sousa and Rojjanasrirat 2011). Such questionnaires are often used by researchers and clinicians in countries different from their countries of origin. They are administered to collect health-related information from participants who do not have a good understanding of the language in which the questionnaire was originally developed (Sousa and Rojjanasrirat 2011). Since these questionnaires are not designed to be used internationally, very little or no consideration is paid to differences in culture and other psychosocial variations between the original language of the questionnaire and the language of the

population with which it will be used (Borsa et al. 2012). Conducting research with a questionnaire developed in a language different from the language of the original questionnaire can result in problems in the quality of data collected, which consequently may produce weak results. Research participants who respond to questionnaires developed in a language they do not understand very well are likely to respond wrongly to the items of the questionnaire. The results of such studies can affect both the participants and other patient populations with the same kinds of illness by way of misdiagnosis or unsuitable treatment plans.

The best option for tackling this problem is to produce and validate indigenous questionnaires in the languages and cultures in which they are intended to be used. However, developing and validating a questionnaire is not an easy task. It requires time, resources, special linguistic skills and knowledge of the construct the questionnaire is designed to measure. Given that most constructs studied in health and medical sciences are universal, and that research results obtained from one country and culture can be applied to diverse populations and cultures, most researchers embrace the approach of adapting and translating existing validated instruments (Rahman et al. 2003). This is a necessary step in conducting cross-cultural studies which requires skilled professionals to translate the instrument from the source language into the target language so that the translated version retains its equivalence in content and meaning such that it can be used in the same manner and for the same purpose as the original source-language version (Borsa et al. 2012). There are considerable benefits in adapting and translating an existing questionnaire compared to designing one specifically for the population of interest. Borsa et al. (2012) suggested that adapting an instrument provides the researcher with the opportunity to compare research results obtained from different samples and against different cultural backgrounds. Accordingly, it provides a context to compare and evaluate interventions and prevalence of disease and to measure the outcomes of interventions, etc. The literature indicates that cross-cultural adaptation of research tool has strong advantages over

developing a new tool (Wild et al. 2009). First, there are many validated scales already in existence and are obtainable ready to be used. Second, most of these scales were developed on the bases of acceptably well-established framework. Cross-cultural adaptation of scale is not only limited to translation, but also about allowing for the conceptual and item equivalence, item and semantic as well as operational equivalences between the source and the target language versions in order to allow for international research, cross-cultural comparison and meta-analysis (Herdman et al. 1998)

By adapting and translating instruments, researchers have the opportunity to generalise their findings and to investigate inconsistencies within a diverse study population (Hambleton et al. 2005). Adapting and translating instruments enables research to be conducted in different countries and cultural groups, thereby generating research results on the construct measured by the instrument in different cultural contexts.

Since most of the instruments used in health research and clinical trials were developed and standardised in the English language, many organisations and international agencies have developed guidelines and frameworks for translating health research questionnaires. For example, the National Test Commission has developed guidelines for the translation and adaptation of psychological instruments (International Test Commission 2010). Similarly, the Health Science Policy Council of the International Society for Pharmaco-economics and Outcome Research (ISPOR) approved the formation of a taskforce mandated to come up with guidelines for linguistic validation and translation of patient-reported outcome (PRO) measures in January 2007 (Wild et al. 2009). In the same manner, the European Commission also produced comprehensive guidelines for use in the adaptation of health survey instruments (Tafforeau et al. 2005). The Mapi Research Institute, an organisation with expertise in cross-cultural adaptation of instruments, has developed a methodology for linguistic validation of clinical outcome assessment measures, which was published in the

Linguistic Validation Manual for Health Outcome Assessments. Again, the American Academy of Orthopaedic Surgeons and the Institute for Work and Health supported the production of the document recommendations for the cross-cultural adaptation of health status measures (Beaton et al. 2002).

5.2 Rationale for the translation of the Amsterdam Pre-operative Anxiety and Information Scale into the Nigerian Hausa

Hausa is a widely spoken language in the West African sub-region. It has more than fifty million native speakers and over fifteen million non-native speakers spread throughout Nigeria, Niger Republic, Northern Cameroon and Ghana (Oyeyemi et al. 2011). In all these countries, over 70% of the Hausa-speaking population have not gone through formal education, which is delivered either in English or French languages (Oyeyemi et al. 2011). Such a population therefore will find it difficult to appropriately understand and respond to a health instrument developed in any language other than Hausa. One of the reasons for adapting the questionnaire is to have it available in a language in which it did not previously exist (Harkness et al. 2011). The Amsterdam Pre-operative Anxiety and Information Scale (APAIS), was therefore translated to have a Hausa-language version available for use by clinicians to assess pre-operative anxiety in Hausa-speaking surgical patients who would not understand the English language version. This is important because the current practice of elective surgery tends to give little time to the encounter between elective surgical patients and members of the pre-operative assessment team. Previously, surgical patients were admitted to the hospital wards a day or two before their scheduled surgical operation (Association for preoperative practice 2008). This is so patients can undergo the necessary medical examinations, interact and familiarise themselves with the hospital staff and environment and undergo the necessary pre-operative preparations so as to have a smooth surgical operation. But today, because of advances in medical and anaesthetic practices, elective surgical patients spend less time in hospital than they previously did. The more developed practices in medicine and anaesthesia have replaced the old practice of admitting

patients to hospital some days before their surgery is performed. According to an Audit Commission (1999), patients' length of hospital stay before elective surgery in the UK has been reduced by almost 50% and this situation is set to continue (Mitchell 2000). This reduction has had, and is progressively having, significant effects on the provision of the psychological aspects of pre-operative care to surgical patients.

In the hospital where the study was conducted, there was acute shortage of mental health practitioners. Part of the responsibilities of the mental health practitioners is attend to the mental health needs of the preoperative patients through counselling and psychotherapy to help in reducing preoperative anxiety. A report of the assessment of the mental health system in Nigeria world health Organisation stated that the total number of human resources working in mental health facilities or private practice in the surveyed states is 3,105 (11.37 per 100,000 populations). The breakdown according to profession reveals that there are 42 Psychiatrists (0.15 per 100,000) population. Other medical doctors 135 (0.49 per 100,000), nurses 659 (2.41 per 100,000), psychologists 20 (0.07 per 100,000), social workers, 34 (0.12 per 100,000), occupational therapists 15 (0.05 per 100,000), other health or mental health workers 2200 (8.03 per 100,000)

With the current practice of elective surgery, patients are admitted one to two hours before their scheduled time of operation and are usually dressed and ready to go home again within one to two hours after the operation (Mitchell 2000). Generally, in Europe, the average time that elective surgical patients have to stay in a typical elective surgery unit is estimated at 6½ hours (Pfisterer et al. 2001). This has greatly minimised the time needed by anaesthetists, nurses and other members of the pre-operative assessment team to interact with the patient. Such time constraints and limitations have caused the medical aspects of surgical care to become more important than the other interventions needed for proper management of surgical patients (Mitchell 2002).

Since very little time is available for the members of the pre-operative assessment team to interact with patients pre-operatively, it is imperative to look for other ways to quickly assess and evaluate elective surgical patients' psychological state before they undergo surgical operations. There are different types of assessment tools used by clinicians and researchers to assess preoperative anxiety in patients undergoing surgical operation. For example, (Kagan and Bar-Tal 2008; Gangadharan et al. 2014; Akinsulore et al. 2015a) Used the State Trait Anxiety Inventory (STAI) to assess preoperative anxiety among their study participants. Visual Analogue Scale (VAS) was used by (Jawaid et al. 2008; Nigussie et al. 2014) and Hospital Depression and Anxiety Scale (HADS) was used by (Haugen et al. 2009b; Guo et al. 2012) to measure anxiety in patients undergoing surgical operation. These instruments though are being used to measure anxiety related to surgery, they are not designed to measure preoperative anxiety and some of them, STAI in particular consist of many items and therefore not suitable for use in a typical preoperative setting. Against this background, there is a need for a short screening tool to be used by anaesthesiologists, nurses and other staff working in the pre-operative assessment clinics (PACs) to quickly screen and assess pre-operative patients within the limited time available to interact with the patients. In this regard, the Amsterdam Pre-operative Anxiety and Information Scale (APAIS) is found to be relevant because of its shortness and ease of administration, scoring and interpretation of results.

5.3 **Theoretical basis for the translation**

This translation research is based on Brislin's translation model for cross-cultural research (Brislin 1970). This model posits that a multilingual person translates the instrument from its original language into the target language (forward translation-Hausa language in the case of this study). Then another multilingual translator back-translates the instrument from the target language to its original language (backward translation). To guarantee the sameness of the translated version, the back translation is carried out by blinding the second translator to the original instrument. The two

versions (the original and the back-translated versions) are then compared for accuracy. Difficult items are identified and again blindly translated back into the source language by a different bilingual translator. This process is repeated until the translated instrument mutually is unambiguous and equivalent with the original version.

5.4 Aim of the translation study

The aim of this section is to translate the APAIS into the Nigerian Hausa language.

5.5 Materials used in the translation

5.5.1 The source-language questionnaire

The APAIS was developed by Nelly (Moerman et al. 1996) for the assessment of anxiety in pre-operative patients. The questionnaire was developed based on the understanding that, given the present-day practice of elective surgery, which gives little time for consultation between surgical patients and the members of the pre-operative assessment team, ascertaining surgical patients' anxiety will be difficult. The APAIS was therefore developed to be used even in busy outpatient clinics to screen pre-operative patients and differentiate anxious ones from the non-anxious ones, as well as to assess patients' needs for more information about their surgery (Moerman et al. 1996). The instrument consists of six questions designed to gather information about fear of surgery, fear of anaesthesia and the need for information. Items 1, 2, 4 and 5 gather information on fear of surgery while items 3 and 6 collect information on the patients' desire for information. Scoring of the questionnaire is done on a 1to5-point Likert scale, ranging from 1 (Not at all) to 5 (Extremely). The four anxiety items consist of two sub-scales – that is, the anxiety related to anaesthesia sub-scale (Sum A), which is obtained by adding the patient's scores on items 1 and 2, and the anxiety related to surgery sub-scale (Sum S), obtained by adding scores on items 4 and 5. The third component measures the patient's desire for information (IDC). This component is obtained by adding the patient's scores for items 3 and 6. Overall, each participant's cumulative anxiety score (Sum C) is obtained by adding the scores of Sum A + Sum S. The highest score

for the anxiety sub-scale = 20. On the information desire sub-scale, a patient with the highest score would have 10 points.

APAIS has been validated and found to be a reliable measure of pre-operative anxiety. Moerman et al. (1996) performed several statistical analyses to calculate the validity of the instrument. Factor analysis was used to establish construct validity. Concurrent validity was established by correlating the APAIS with the state version of Spielberger's state-trait anxiety inventory (STAI), which was considered the gold standard for measuring pre-operative anxiety (Moerman et al. 1996; Boker et al. 2002). It was hypothesised that significant correlation (>.60) between the state scale of the STAI and the anxiety sub-scale of the APAIS would exist, and that there would be a lower correlation (>.30) with the desire for information sub-scale of the APAIS. The internal consistencies of both scales were also found to be sufficient for group comparison.

Given the high correlation of the APAIS with what has been considered as the gold standard in measuring pre-operative anxiety – the state version of the STAI – many researchers have used and are still using the APAIS to collect data for their research. For example, Matthias and Samarasekera (2012) undertook research to find the prevalence of and factors responsible for pre-operative anxiety among Sri Lankan surgical patients. The APAIS was administered to a total of 100 patients aged 18 years and above to gather information relating to their pre-operative anxiety. The study revealed that, considering an APAIS cut-off score of 11 or more as indicating high anxiety, 76.7% of Sri Lankan surgical patients participating in the study were highly anxious pre-operatively (Matthias and Samarasekera 2012). Also, Wetsch et al. (2009) conducted a study of pre-operative stress and anxiety in elective day surgery patients and in patients undergoing fast-track surgery. Patients aged 18–80 years with the American Society of Anaesthesiologists (ASA) physical status I-III scheduled for non-emergency trauma surgery or cosmetic surgery were enrolled to participate. Two groups (consisting of 135 patients) were used in the study. One group consisted of elective

surgery patients while the other group consisted of patients scheduled for cosmetic surgery. Data was collected in different forms: psychometric testing and plasma levels of neuro-hormones, catecholamine and benzodiazepine. The psychometric testing aspect of data collection uses four instruments: the STAI, the APAIS, and the Anaesthesia- and Surgery-Dependent Pre-operative Anxiety (ASPA) scale and the Visual Analogue Scale (VAS). The neuro-hormonal data was derived from analyses of blood and urine samples collected from each patient using standard specialised instruments intended for this purpose. The study revealed no statistically significant difference in the assessment of either anxiety or stress levels after analysing the APAIS, the ASPA scale and the VAS. However, when the APAIS cut-off scores level of >13 was used to analyse the level of pre-operative anxiety, 43% of inpatients and 38% of elective day surgery patients were found to be significantly anxious.

The validation process of the APAIS revealed that the four items that measure a patient's fear of anaesthesia and fear of the surgical procedure have produced a Cronbach's α of 0.86, while the two items designed to measure the patient's need for information have a Cronbach's α of 0.72 (Moerman et al. 1996). Thus, with these characteristics, the APAIS could be used as a valid measure of patients' feelings that can objectively quantify patients' level of anxiety pre-operatively. Such information could therefore be utilised to screen highly anxious patients so as to provide them with psychological intervention and/or anxiolytic medication (Boker et al. 2002). This short instrument, which is easy to administer and score, could be further used to assess the adequacy and evaluate the effectiveness of pre-operative intervention.

Because of its suitability and ease of administration, many researchers have adapted and translated the APAIS for use in various countries around the world. Maurice-Szamburski et al. (2013) published the validation of the French version of the APAIS. The forward-backward translation method was used to translate the questionnaire into French. Back translation did not produce any

mismatches. The translated French version was then administered to elective surgical patients over 18 years of age who were able to understand, read and complete a self-report measure in French. The data generated from this study was subjected to statistical analysis to obtain the validity and reliability indexes of the French version of the instrument. The analysis revealed very high internal consistency, reliability and construct validity, with Cronbach's alpha (α) values ranging from 0.76–0.84 (Maurice-Szamburski et al. 2013). In a similar manner, Mohd et al. (2015) adapted and translated the APAIS into the Malay language. The same forward-backward method of translation by bilingual English and Malay speakers was used to translate the instrument. The final Malay version was pilot-tested on three groups of five elective surgical patients in order to test the ease of administering the translated instrument. The authors discussed the problems identified and further updated it until they arrived at the final version. The final version was then administered to 200 pre-operative patients attending a pre-operative assessment clinic of the University of Malaya's medical centre. The result obtained was used to compute the psychometric properties of the scale, including factor analysis and internal consistency. The translated Malay version was correlated with Spielberger's state version of the STAI, which produced a perfect correlation coefficient of r = 0.59. The anxiety and need for information sub-scales both occurred with high internal consistency (Cronbach's α 0.93 and 0.90 respectively) (Mohd et al. 2015). In another translation study, Nishimori et al. (2002) translated and validated the APAIS for use in Japan. The translation process used included forward-backward translations, reconciliation and an expert committee review. The translated Japanese version of APAIS was pilot-tested using the European Organisation for Research on Treatment of Cancer (EORTC) quality-of-life study group translation procedure. Surgical patients undergoing surgery under general anaesthesia were recruited to participate in the research. Patients who could not understand Japanese very well and who were also in poor medical condition were not included. To assess the validity of the Japanese version, statistical analysis was performed and

Cronbach's alpha (α) 0.84 was obtained for the anxiety sub-scale and 0.68 for the need for information sub-scale. The anxiety scale of the Japanese version highly correlated with the state version of the STAI. Nishimori et al. (2002) concluded that the Japanese version of APAIS is a valid and reliable instrument and therefore suitable for assessing and evaluating Japanese patients in the pre-operative period to determine their pre-operative anxiety and information requirements.

The present study was the first to translate and conduct a cross-cultural validation of the Amsterdam Pre-operative Anxiety and Information Scale (APAIS) into the Hausa language. Prior to this study, there is no information in the published literature that reported the translation and validation of the APAIS into the Hausa language. Secondly, all other studies that translated the APAIS questionnaires into other languages dwell much on validating the instruments and calculating the reliability and alpha coefficients of the translated questionnaires. In the present study, apart from calculating the psychometric properties of the APAIS-H, the study also sought to find out how well the participants understand the translated items, instructions and the response format of the translated Hausa version of the questionnaire.

5.6 **The process of translation**

When adapting a questionnaire to be translated into another language, attention must be paid to its translatability from the source language into the target language – the language that the intended users of the new version speak. This is not an easy task and it requires special care to ensure that the new translated version is suitable for use in the new culture and at the same time equivalent to the original source-language version. Borsa et al. (2012) suggested five stages of instrument adaptation and translation: (1) translation from the source language into the target language, (2) synthesis of the translated versions, (3) analysis of the synthesised version by expert judges, (4) back translation, and (5) a pilot study. Consequently, to achieve a better translation and cross-cultural

adaptation, these stages have been used to guide the translation in this project.

5.6.1 Forward translation

Forward translation involves the translation of a questionnaire into a language other than its language of origin. In the context of this study, forward translation refers to the translation of the Amsterdam Pre-operative Anxiety and Information Scale (APAIS) from the English-language version to a Hausa-language version. According to the Mapi Research Institute, the original language of the questionnaire is referred to as the source language, while the language to which the questionnaire is translated is referred to as the target language.

5.7 Participants/resources used for forward translation

To achieve a good forward translation of a questionnaire into a target language, the literature suggests that two independent, bilingual translators should be recruited to translate the questionnaire items, the instructions and the response format into the target language (Gudmundsson 2009; Muniz et al. 2012). The two professional translators should be native speakers of the target language and also fluent in the source language. Although, previously, a single forward translator was thought to be sufficient for the forward translation process, having at least two bilingual translators is highly recommended. This will reduce the danger of biases in terms of linguistic, theoretical and practical understanding (Cassepp-Borges et al. 2010). According to Borsa et al. (2012), translators should be fully proficient in both languages and familiar with the cultures associated with the respective languages of each group. Beaton et al. (2002) argued that questionnaire translators must speak and write the source language of the questionnaire fluently and should also be native speakers of the target language. These qualities make the translation process more comprehensive by enabling the differences with the language for which the instrument is intended to be considered. It is highly recommended that translators should possess excellent writing skills as well as a good understanding of the

construct and the subject matter the questionnaire is designed to assess (Muniz et al. 2012)

5.7.1 Recruitment of forward translators

It has been recommended that professionally trained translators with experience in medical language translation should be recruited to carry out the translation of health questionnaires. However, it is difficult to have these kinds of professionals readily available at all times and in particular where the study is intended to be carried out. Alternatively, Squires et al. (2013) suggested that translators should at least possess a bachelor's degree and some years of experience in translation work. Against this background, two independent professional translators (Forward Translator 1 [FWT1] and Forward Translator 2 [FWT2]) with the above level of qualification and experience were recruited to carry out the forward translation of the APAIS from the English-language original to the Hausa language.

FWT1 (Mr S.I.) is a native speaker of the Hausa language and currently works with an international radio station in the Hausa services division. He has been involved in translating many English texts into the Hausa language for more than 25 years. FWT2 (Mr M.D.) is also a native speaker of the Hausa language and a senior lecturer in a university English language department. He has been teaching both Hausa and English for over 15 years and is currently undertaking a PhD in post-colonial literature in the United Kingdom.

5.8 Methodology for forward translation

Each of the two independent translators recruited to conduct the forward translation was asked to separately translate and produce a forward-translated version of the questionnaire. Their work consisted of translating the items, the instructions and the response choices of the questionnaire into the Hausa language. The aim was to achieve semantic and conceptual equivalence of the instrument rather than a direct word-for-word translation. The translators were therefore instructed to pay attention to the following guidelines in this process:

- Avoid literal translation: that is, they should consider the meaning of the original item so as to translate it in the most appropriate way.
- Be clear and to the point: the lower the number of words, the better the translation. Long sentences containing several clauses should not be used.
- Use simple and acceptable language for the target participants. Bear in mind the typical respondent of the instruments; bear in mind levels of education of the potential respondents and also consider the language commonly used in everyday conversation.
- Avoid the use of jargon, colloquialisms and idioms.
- Take note of gender and age: avoid the use of terms that might be considered unpleasant to the target population.

Table 10: discrepancies and alternative phrases agreed upon in the reconciliation meeting for the forward translation APAIS.

	Original items (source-language items)	Translated items	Discrepancies identified	Agreed alternative words/phrases	Resolutions (item should read)
1	I am worried about the anaesthetic.	T1. *Na damu game da allurar barcin.* T2. *Ina fargabar yanayin magagi daza a saka ni kafin aikin.*	*Allurar barcin* *Yanayin Magagi da za a saka ni* Neither of the two translators used words and phrases that translated and explained the word 'anaesthetic' very well.	*Maganin kashe ciwon*	*Na damu da maganin kashe ciwon da za a yi min*
2	The anaesthetic is on my mind continually.	T1. *Ko yaushe ina tunanin allurar barcin da za'a yimin*. T2. *Ina tararradin magagin da za a saka ni kafin aikin*	*Allurar barcin* *Tararradi, Magagi* Neither of the two translators used words and phrases that translated and explained the word anaesthetic very well.	*Maganin kashe ciwon*	*Ko yaushe ina tunanin maganin kashe ciwon da za a yi min.*
3	I would like to know as much as possible about the anaesthetic.	T1. *Ina son sanin duk iya abin da zan iya sani game da allurar barcin* T2. *Ina son sanin duk abin da zan iya sani game da magagin da za a saka ni a ciki*.	*Allurar barcin,* *Magagi*	The phrase sanin Komi to be used in place of *duk iya abin da zan iya sani and sanin duk abin da…*	*Ina son sanin komi game da maganin kashe ciwon da za a yi min*

4	I am worried about the procedure.	T1. *Na damu game da yadda ake allurar barcin* T2. *Ina zullumin aikin fiɗar da za a yi mini*	*Allurar barci, zullumi and aikin fida*	The phrase Na damu is more appropriate to use than the word *zullumi.* Also, *aikin fidar* should be replaced with the word *tiyatar.*	*Na damu game da aikin tiyatar da za a yi mini.*
5.	The procedure is on my mind continually.	T1. *Ko yaushe yadda ake allurar barcin na cikin raina* T2*. A koda yaushe ina tararradin aikin fiɗar da za a yi mini*	*Yadda ake allurar barcin na cikin raina* *Tararradin aikin fidar*	Neither translation captured the conceptual meaning of the item*. Ina tunanin aikin tiyatar* would be a better translation*.*	*Ko yaushe ina tunanin aikin tiyatar a zuciya ta*
6	I would like to know as much as possible about the procedure.	T1. *Zan so sanin duk iya abin da zan iya sani game da yadda ake allurar barcin* T2. *Zan so sanin duk iya abin da zan iya sani game da aikin fidar da za a yi min*	*Yadda ake allurar barcin* and *aikin fidar*	The phrase sanin Komi is to be used in place of *duk iya abin da zan iya sani and sanin duk abin da…*	*Ina son sanin komi game da aikin tiyatar da za a yi mini.*

The table above presents the summary of the conclusions reached in the reconciliation meeting with the translators before producing the first reconciled version (Version 1) of APAIS-H.

5.9 Item analysis of the translated items translations

Item 1: I am worried about the anaesthetic

Item 1 is concerned with the patient's fear of anaesthesia. The word 'anaesthetic' has no direct equivalent in the Hausa language. As a result of this, the two translators translated the item entirely differently. When the two translations were compared, translator 1's translation was accepted as semantically equivalent with the original source-language version, except for the translation of the word 'anaesthetic', for which he used the phrase 'allurar barcin', literally meaning 'sleeping injection'. Translator 2 used many words to translate the item. The words 'fargaba', 'yanayin' and 'magagin' are words that are not commonly used in everyday conversations and are therefore not suitable for use in translating this item. The expert committee agreed to use the phrase 'maganin kashe ciwon' as the appropriate translation of the word 'anaesthetic'. Finally, the committee agreed that the item should be translated as 'Na damu da amaganin kashe ciwon da za a yi min'.

Item 2: The anaesthetic is on my mind continually

Item 2 also measure the fear of anaesthesia. Both translators used the same phrases 'Ko da yaushe' to mean 'continually'. Just as in the translation of item 1, translator 1 used the phrase 'allurar barcin' to mean 'anaesthetic' and also added the phrase 'da za a yi min', to translate the item. Putting them together, translator 1 translated the item as *'ko da yaushe ina tunanin allurar barcin da za a yi min'*. Translator 2 used many words to translate the item. The item was translated as '*ko da yaushe ina tararradin magagin da za a saka ni kafin aikin'*. The committee resolved that, besides the issue of the high number of words used in the translation of the item, the words '*taraddadi'* and '*magagi*' are not words considered to

be frequently used in daily conversation and they would therefore make it difficult for participants to understand the item. Finally, the committee resolved that item 2 should read ‘ko yaushe ina tunanin maganin kashe ciwon da za a yi min’.

Item 3: I would like to know as much as possible about the anaesthetic

Item 3 was designed to measure the patient’s desire for information about anaesthesia. The translation of this item was straightforward. Both translators used the same words, ‘ina son sanin duk iya abin da zan sani game da…’,to translate the sentence ‘I would like to know as much as possible about the...’ However, the word ‘anaesthetic’ was translated differently by the two translators: translator 1 used the phrase ‘allurar barcin’ and translator 2 used several words (‘magagin da za a saka ni a ciki’). Both were considered inappropriate by the committee and therefore discarded. Thus, as in the translation of item 1, the phrase ‘maganin kashe ciwon’, which was considered more colloquial, was therefore taken as the best translation of ‘anaesthetic’. Hence, it was agreed the item was to be translated as ‘ina son sanin duk iya abin da zan iya sani game da maganin kashe ciwon’.

Item 4: I am worried about the procedure

This item measures anxiety related to surgery. The two translators translated the item differently. Translator 1 translated it as ‘nadamu game da yadda ake allurar barcin’. Literally, this means ‘I am worried about how the anaesthesia is done’. Translator 2 translated the item as ‘ina zullumin aikin fidar da za ayi min’. Literally, this translation means ‘I am confused/thinking of/in dilemma about the skinning that will be done to me’. The phrase ‘aikin fidar’ in Hausa means ‘skinning’ – that is, the technique of removing the skin of a slaughtered animal. Even though it is used sometimes to mean surgery, it was considered inappropriate because it might scare the respondents. The alternative word agreed on to describe the word ‘procedure as ‘tiyatar’, a word borrowed by the Hausa

language from the English word ‘theatre’. The resolution reached was that item 4 should read ‘na damu game da aikin tiyatar da za a yi min’.

Item 5: The procedure is continually on my mind

This item measured anxiety related to surgery. There is a notable difference in the translation of this item by the two translators. Neither of them captured the semantic meaning of the item. The discrepancies identified are the use of the phrases ‘tararradin aikin fidar da za a yi min’ (translator 1) and ‘allurar barcin’ (translator 2). It was agreed that the item would be translated as ‘ko yaushe ina tunanin aikin tiyatar da za a yi min’.

Item 6: I would like to know as much as possible about the procedure

Item 6 measure the patient’s desire for information about surgery. The wording is the same as in item 3, which measures the patient’s desire for information about anaesthesia, except that this item is about ‘procedure’, not ‘anaesthesia’. Thus, the committee agreed to adopt the translation for item 3 and to replace the words ‘maganin kashe ciwon’ (anaesthesia) with the phrase ‘aikin tiyatar’ (procedure) so that the item reads ‘ina son sanin komai game da aikin tiyatar da za a yi min’.

5.10 **Translation of the instructions**

The instructions on how to respond to the items in the questionnaire were also forward-translated into Hausa. As with the items, the translators used the words or phrases that best translated the instructions of the instrument into Hausa so that the meaning of the instructions remained the same as in the original questionnaire.

Table 11: Translations of the instruction, discrepancies identified and agreed phrases during reconciliation meeting with the forward translators

Original instructions	**Translation by translator 1**	**Translation by translator 2**	**Discrepancies observed**	**Resolution**	**The instructions should read**
Below are some statements indicating the degree of fear of surgery expressed by surgical patients. Please tick (✓) appropriately the column that describes your feelings.	*Ga nan wadansu jawabai a kasa dake nuna damuwa da fargaba da galibin wadanda za a yiwa tiyata ke samu. Sanya alamar amincewa (✓) ga zabinda yafi dacewa da yadda ka/ki keji.*	*A kasa ga bayanai da ke nuna yanayin tsoro da wadanda za a yiwa tiyata ke samu. Sa alamar amincewa (✓) ga zabin da yafi dai dai da yadda ka/ki keji*	Both translations were appropriate. However, translator 1 used more words, thus making the instructions too cumbersome.	Translator 2's translation has been adopted for use as the instructions for the Hausa version of the APAIS.	A kasa ga bayanai da ke nuna yanayin tsoro da wadanda za a yiwa tiyata ke samu. Sa alamar amincewa (✓)ga zabin da yafi dai dai da yadda ka/ki keji

5.11 **Translation of the response options**

The response options (how to respond to the items) of the questionnaire were also forward-translated into Hausa. As with the items and the instructions, the translators used words or phrases that best translated the response options of the instrument into Hausa so that the meanings of the response options remained the same as in the original questionnaire. The following table presents translation of the response options by the two forward translators, the discrepancies identified in the two translations and the text it was agreed would stand as the translation.

Table 12: Translation of the response options, discrepancies and agreed alternative words

Original items (source language items)	**Translated Items**	**Discrepancies identified**	**Agreed alternative words/phrases**	**Resolutions (response should read)**
Not at all	*T1. Kwata-kwata banamince ba* *T2 .ko kadan ban amince ba*	Kwat-kwata and ko kadan	Sam sam, ko kadan and kwata kwata	Ko Kadan ban amince baba
Disagree	*T1. Ban amince ba* *T2.Ban yarda ba*	Both words can fit the translation.	Either can be used	Ban amince ba
Somewhat agree	*T1. Na dan amince* *T2.Na dan yarda*	Both translations are appropriate.	Either can be used	Na dan amince
Agree	*T1. Na amince* *T2.Na yarda*	Both translations are appropriate.	Either can be used	Na amince
Strongly agree	*T1. Na amince sosai* *T2.Na yarda sosai*	Both words can fit the translation.	Eithercan be used	Na amince sosai

To keep the wordings used in the forward translation consistent, the phrase ‘na amince’ (translator 1) was adopted instead of the phrase ‘na yarda’ (translator 2), even though they both mean the same thing.

5.12 **Backward translation**

Backward translation consists of the translation of a questionnaire back into its source language. Harkness et al. (2011) referred to backward translation as the translation of a translation back into the source language. Translating questionnaires back into the source language has been recommended by experts in the field of cross-cultural adaptation of health research instruments. The primary purpose is to provide a quality-control step demonstrating that the quality of the translation is such that the same meaning can be derived when the translation is moved back into the source language. The aim is to make a comparison with the original source-language questionnaire and to demonstrate that the translation has not changed the conceptual meaning of the original source-language questionnaire (Dorer 2010; Borsa et al. 2012). However, some authors have shown that back translation tends to focus more on word-for-word translation of the instrument, and not on conceptual equivalence with the original source-language questionnaire (Gudmundsson 2009; Dorer 2010). Going by the guidelines for language translation and cross-cultural adaptation (Gorecki et al. 2014), backward translators should not only be native speakers of the source language but also proficient in the target language and they should also live in the target country. It is significant that translators understand the culture of the target population for whom the translation is made but should not have prior knowledge of the translated questionnaire. However, meeting this condition is not always possible. Occasionally, it can be difficult to have professionals of this kind readily available for use when a study demanding translation is conducted. Alternatively, (Squires et al. 2013) suggested, translators should have at least a bachelor's degree and some years of experience in translation work. Against this background, and in accordance with the Mapi Research Institute's translation guidelines, a single backward translator was recruited to undertake backward translation of the first reconciled forward-translated version of the APAIS-H to the source language. In keeping with these guidelines, the back translator did not have access to the original source-language questionnaire and was not aware of the purpose for which the translation was conducted.

Figure 13: The process of translation

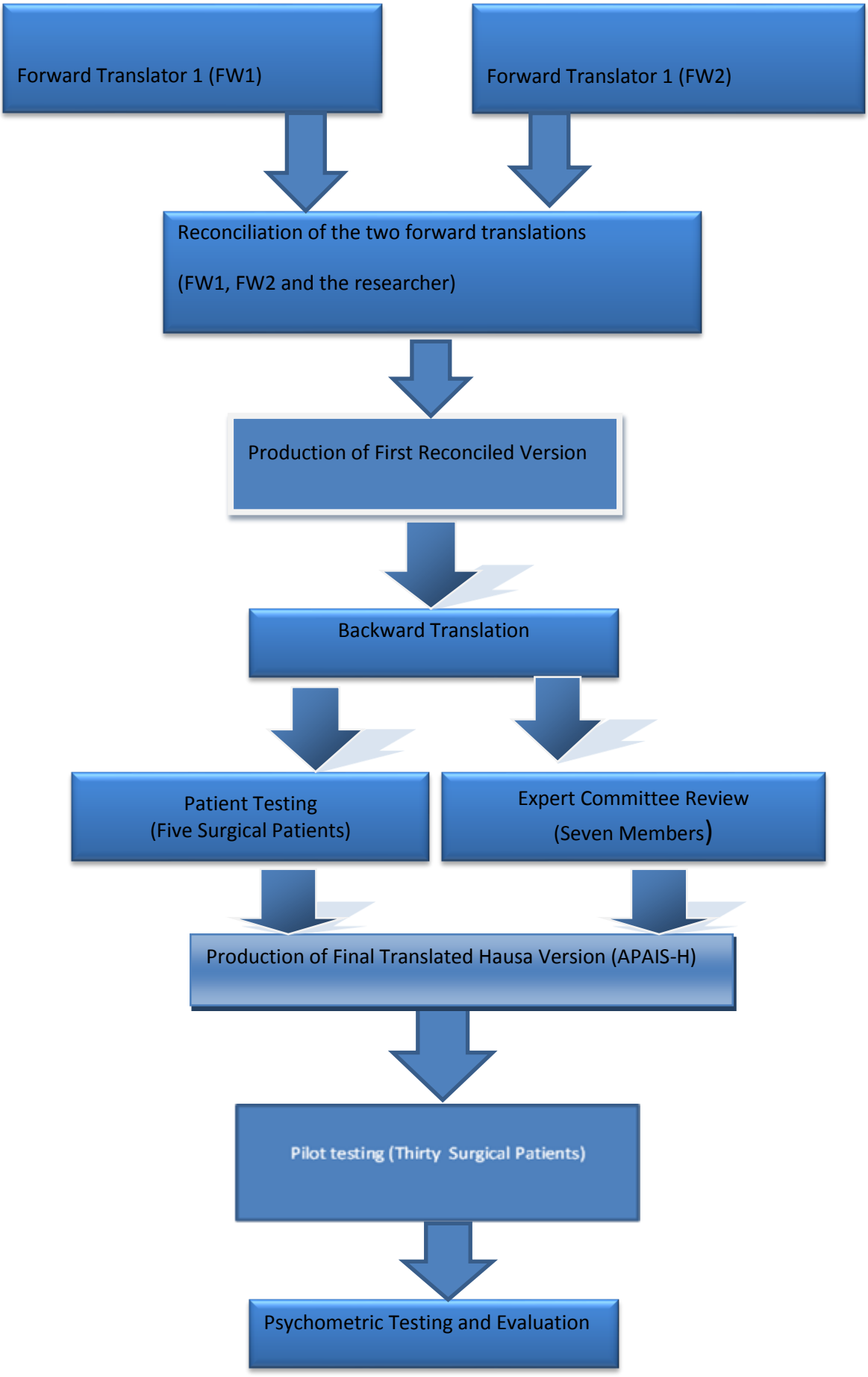


Table 14: The translated Hausa version of the Amsterdam Pre-operative Anxiety and Information Scale (APAIS-H)

	Bayanai	**Reconciled forward translation**	**Ko Kadan ban amince baba**	**Ban amince ba**	**Na dan amince**	**Na amince**	**Na amince sosai**
	Forward translation	Backward translation	Strongly/ completely disagree	Disagree	Partially agree	Agree	Strongly/ completely agree
Item1	*Na damu da maganin kashe ciwon da za a yi mini.*	I am worried/disturbed about the anaesthetic medication.					
Item2	*Ko yaushe ina tunanin maganin kashe ciwon da za a yi mini.*	I am always thinking about the anaesthetic medication.					
Item3	*Ina son sanin komi game da maganin kashe ciwon da za a yi mini.*	I would like to know everything about the anaesthetic medication.					
Item4	*Na damu game da aikin tiyatar da za a yi mini.*	I am worried/disturbed about the surgery/operation I will undergo.					
Item5	*Ko yaushe ina tunanin aikin tiyatar a zuciya ta.*	I am always thinking about the surgery/operation I will undergo.					
Item6	*Ina son sanin komi game da aikin tiyatar da za a yi mini.*	I want to know everything about the surgery/operation I will undergo.					

5.13 **Expert committee review**

After successful forward and backward translations, evaluation of the quality of translation of the instrument was recommended. A quality evaluation review is a procedure for ascertaining the conceptual and linguistic equivalence of the translated instrument. To undertake this, a panel consisting of seven members – two surgeons, two anaesthetists, a language expert, the researcher and an independent judge – was formed. All members of the panel are native speakers of the target language who understand the source language, speak it fluently and write very well in it. The quality evaluation and review procedure consisted of giving each member of the panel (except the researcher) a copy of the translated questionnaire to read, given that the questionnaire is very short and takes only 3–5 minutes to complete. They were all instructed to pay attention to the clarity, comprehensiveness and acceptability of the instructions, response format and items, and to report any difficulties or problems observed in the translated questionnaire. Clarity in this context is concerned with general understanding of the questionnaire; comprehensiveness relates to whether the words and phrases used in the items, and in the instructions and the response options, are known to all; and acceptability is about ethical and moral considerations – that is, are the items too sensitive, and do they affect the respondents' privacy? After reading the translated questionnaire, the seven panel members were also given the original source-language version to compare with the translated version. This was followed by a discussion where each member of the panel explained any problems with the translation that he/she had identified.

There was general agreement among members of the panel that the translation of the instructions and the response format of the questionnaire were equivalent to the original source-language version. However, two of the seven panel members – interestingly,

both anaesthetists – raised some issues about certain words used in the translation of the items of the questionnaire. Their concerns related to the phrase ‘maganin kashe ciwon’, used in the translation of the word ‘anaesthetic’, which they argued was not really equivalent to the English word ‘anaesthetic’. They argued that ‘maganin kashe ciwon’, which literally means ‘the medicine that kills pain’, would be a good descriptor for ‘pain reliever’ or ‘analgesics’ rather than a good translation of ‘anaesthetic’. The committee then deliberated on alternative words or phrases to translate the word ‘anaesthetic’. This was not possible as all the words suggested were refused because they do not translate the word anaesthetic. Finally, the phrase ‘maganin kashe ciwon’ was adopted by all members of the panel to stand as the translation of anaesthetic.

The difficulty in achieving translation of most medical, scientific and technical concepts into \other languages has been reported in the literature (Racalde 2017). The essence of backward translation is not to achieve literal interpretation of the source-language version and the translated versions. Rather, the process of back translation should serve as a means of detecting inappropriate words used in the target language and finding irregularities in the final version (Borsa et al. 2012). Following the evaluation and review by the expert panel, the final version of the translated questionnaire was produced, ready for pilot testing.

5.14 **Pilot testing**

Before any adapted and translated instrument can be considered fit for use in the population for which it was designed, it is necessary to conduct a pilot study. A pilot study is an important phase in a research translating an instrument and is conducted to find potential problem areas and insufficiencies in the research instruments and protocol prior to implementation during the full study Lancaster et al. (2004) and Kraemer et al. (2006). It can also help of the

researcher(s) become acquainted with the processes in the protocol, and can help them decide between two opposing study methods, like using interviews instead of a self-rating questionnaire Hassan et al. (2006) The translated Hausa version of the APAIS was tested on 30 surgical patients, 13 males and 17 females. Their ages ranged from 18 to 75 years. They were all informed that the questionnaire was translated from English to Hausa and that therefore they were required to assess the quality of the translation. Specifically, they were instructed to pay attention to the questionnaire instructions, the response format and all the items. If they could not understand any of these, they were required to indicate this and point out what the difficulty was with the item in question. To assess their level of understanding or lack of understanding, the translated scale was therefore placed on a 5-point Likert scale ranging from 'totally not understood', 'not understood', 'somewhat understood', 'understood' and 'well understood'

5.15 **Item Understanding**

Descriptive statistics were used to analyse the findings. Summary tables, percentages of the participants' understanding of the translated items and bar graphs were produced to display the collected data using the statistical software SPSS IBM Corp, released 2013 (IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp) to present the participants' scores for item understanding, understanding of the instructions, response format and the general content of the translated Hausa version of the questionnaire.

Table 15: scores of the study participants' responses for item understanding

Fear of surgery subscale					Need for information subscale	
	Item 1	Item 2	Item 4	Item 5	Item 3	Item 6
Totally Not Understood	0 (0)	0 (0)	0 (0)	0 (0)	2 (6.7)	0 (0)
Not Understood	2(6.7)	2 (6.7)	1 (3.3)	0 (0)	2 (6.7)	1 (3.3)
Somewhat Understood	5 (16.7)	5 (16.7)	5 (16.7)	2 (6.7)	4 (13.3)	4 (13.3)
Understood	18 (60)	14 (46.7)	11(36.7)	19(63.3)	12 (40)	16(53.3)
Well Understood	5 (16.7)	9 (30)	13(43.3)	9 (30)	10(33.3)	9 (30)

5.16 **The anxiety related to surgery sub-scale**

From the table above, it can be seen that, for item 1, which measures anxiety related to anaesthesia, no participant reported totally not understanding the item. Only two (6.7%) participants reported they did 'not understand' the item and five participants (16%) 'Somewhat understood' the item. On the other hand, a total of 18 (60%) of the participants 'understood' the item, while only five (16.7%) reported that they 'understood' the item 'very well'.

The participants' item understanding for item 1 is presented in the bar chart below

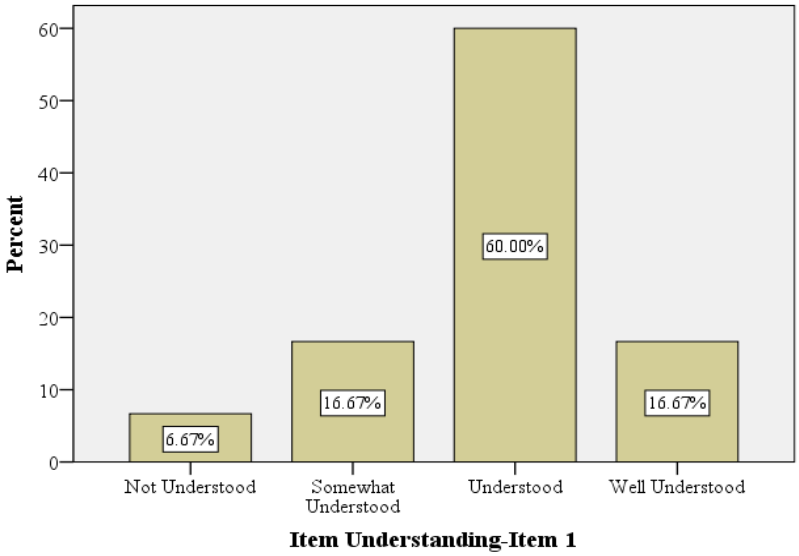


Figure 1: Participants item understanding for item 1

For item number 2, which also measures the fear of anaesthesia, no participant reported that he/she totally did not understand it. Only two participants (6.7%) scored that they did ‘not understand’ the item. On the other hand, five participants (16.7%) endorsed that they ‘somewhat understood’ the item and the remaining 14 (46.7%) participants ‘understood’ the item and nine (30%) reported that they ‘understood’ the item ‘very well’. The participants’ scores for item 2 are presented in the bar chart below.

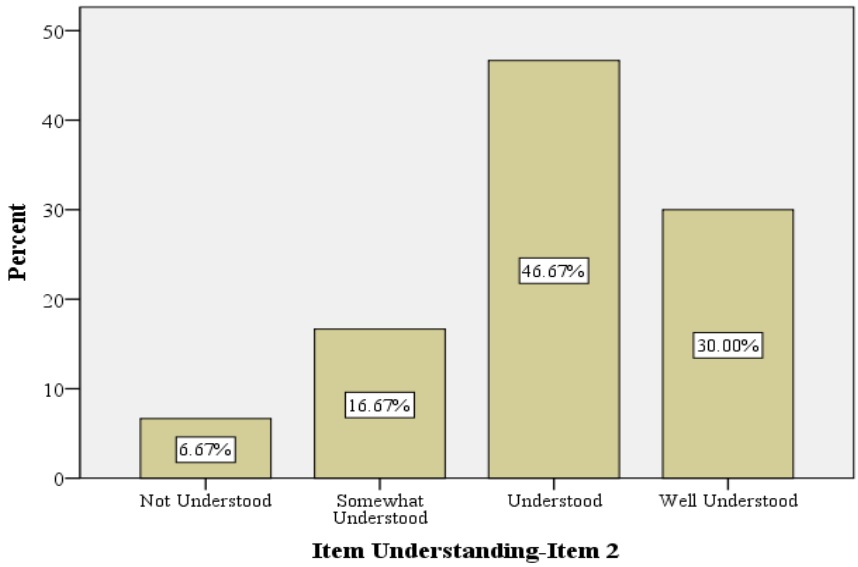


Figure 2 Figure 2: Participants item understanding for item 2

With item 4, which measures anxiety related to surgery, the participants' item understanding scores indicate that only one (3.3%) participant reported that he/she did 'not understand' the item; five participants (16.7) reported that they 'somewhat understood' the item, 11 participants (36.7%) understood it and the remaining nine (30%) participants reported that they understood the item very well. The result of participants' item understanding for item 4 is presented in the following bar chart.

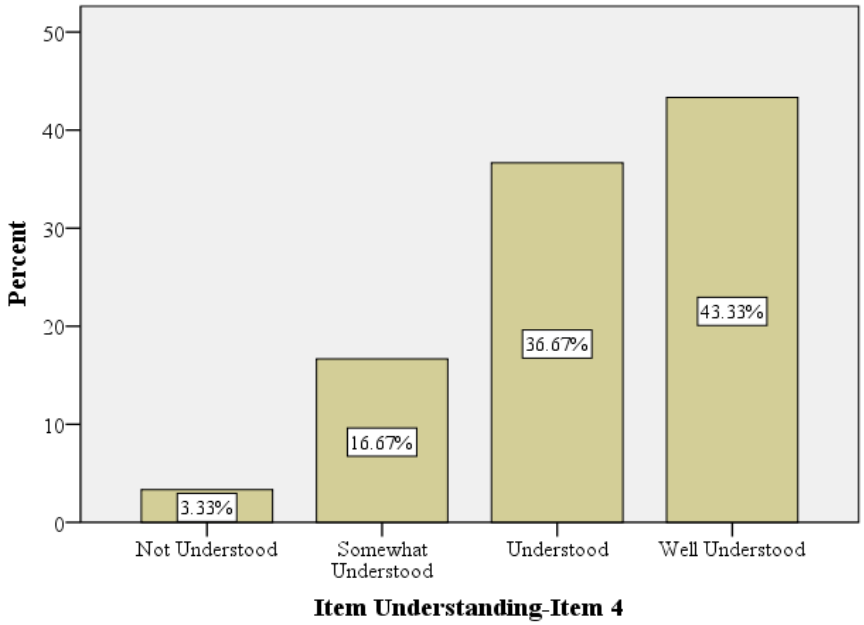


Figure 3: Participants' item understanding for item 4

For item 5 on the anxiety sub-scale, which also measures the fear of surgery, none of the participants of the study stated either that they ‘totally did not understand’ or ‘did not understand’ the item. Only two (6.7%) participants scored that they ‘somewhat understood’ the item. On the other hand, a total of nine (30%) participants scored that they ‘understood’ the item while the large majority, 19 (63%) participants, scored that they ‘understood’ item 5 ‘very well’. The following bar chart presents the participants’ item understanding scores for item 5.

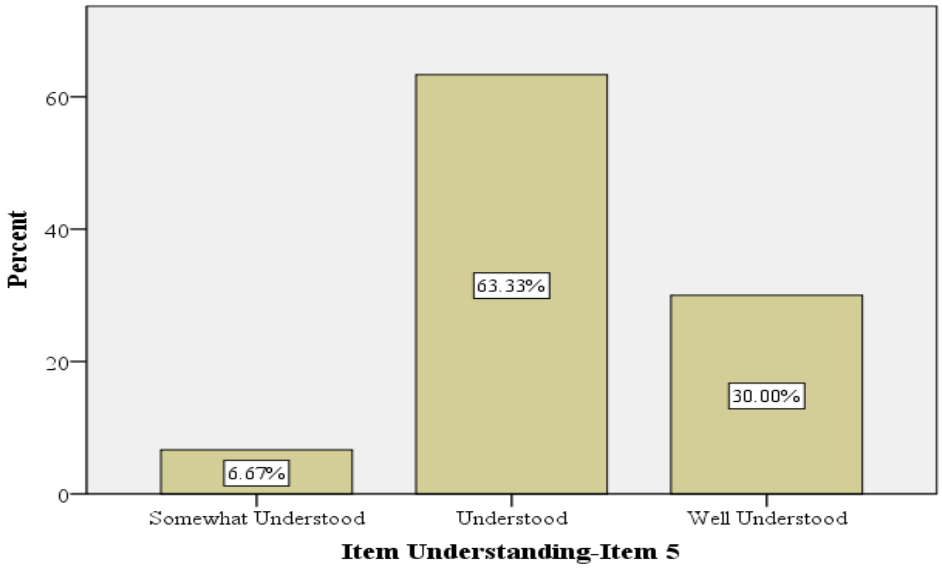


Figure 4: Participants item understanding for item 5

5.17 **The information desire sub-scale**

On the APAIS scale, patients' desire for information is measured by items 3 and 6. Participants' scores for this sub-scale indicate that, for item 3, only two (6.7%) of the total number of participants scored that they 'totally did not understand' the content of the item at all. Another two (6.7%) indicated that they did 'not understand' the item, and four (13.3%) indicated that they 'somewhat understood' the item. On the other hand, 16 out of the total number of participants (53.3%) reported that they 'understood' the item while the remaining ten (33.3%) participants reported that they 'understood' the item 'very well'. Participants' item understanding for item 3 is presented in the following bar graph.

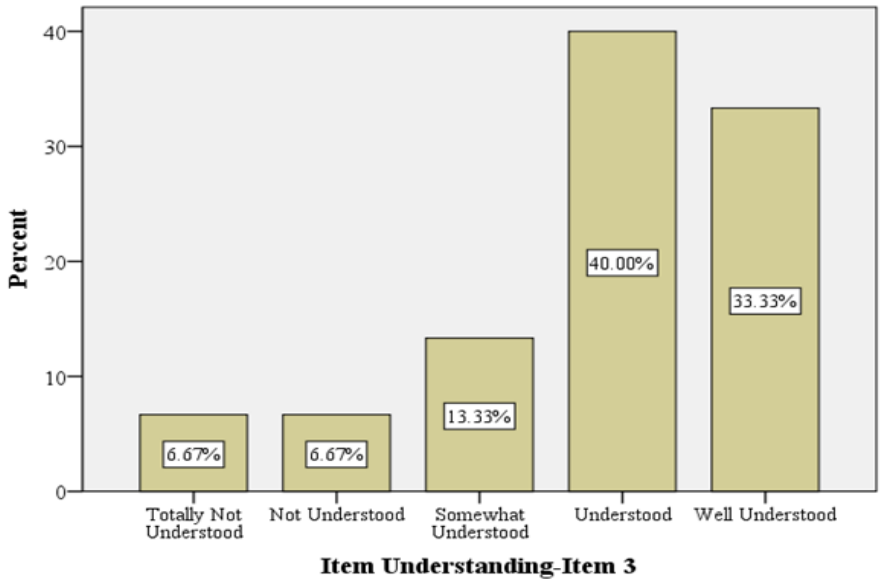


Figure 5: Participants item understanding for item 3

For item 6, only one participant (3.3%) reported 'not understanding' the item, four participants (13.3%) 'Somewhat understood' it, 16 (53.3%) 'Understood' it and nine (30%) 'Understood the item very well'

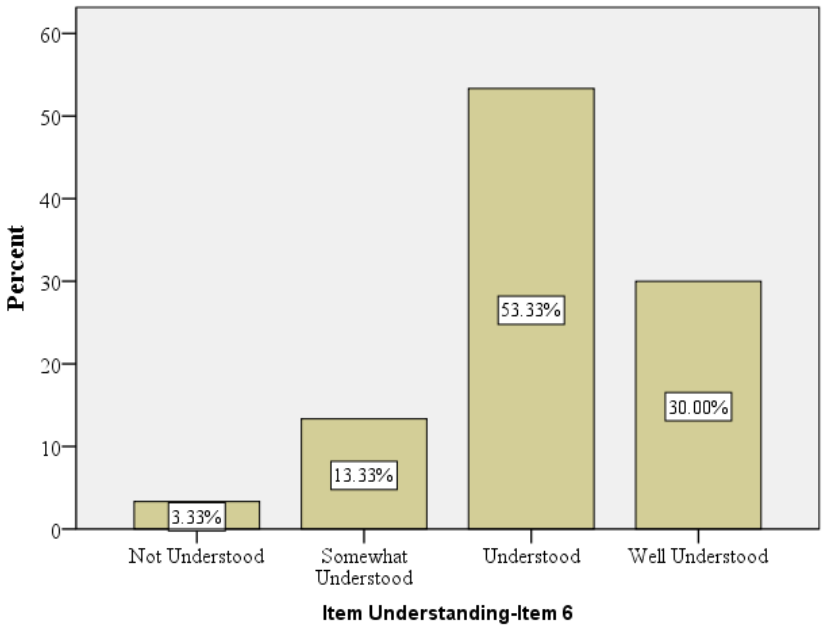


Figure 6: Participants item understanding for item 6

Table 16: scores of the participants' responses for the understanding of the Instruction

	Frequency	Percent	Valid Percent	Cumulative Percent
Not Understood	1	3.3	3.3	3.3
Somewhat Understood	6	20.0	20.0	23.3
Understood	17	56.7	56.7	80.0
Well Understood	6	20.0	20.0	100.0
Total	30	100.0	100.0	

For the understanding of the instructions of how to answer or respond to the translated items of the APAIS-H, the participants' responses show that one participant (3%) did not understand the instruction, six (20%) somewhat understood, 17 (56.7%) understood and six (20%) well understood the instruction on how to respond to the items of the questionnaire. The participants' scores for the understanding of the instructions are presented in the following bar chart.

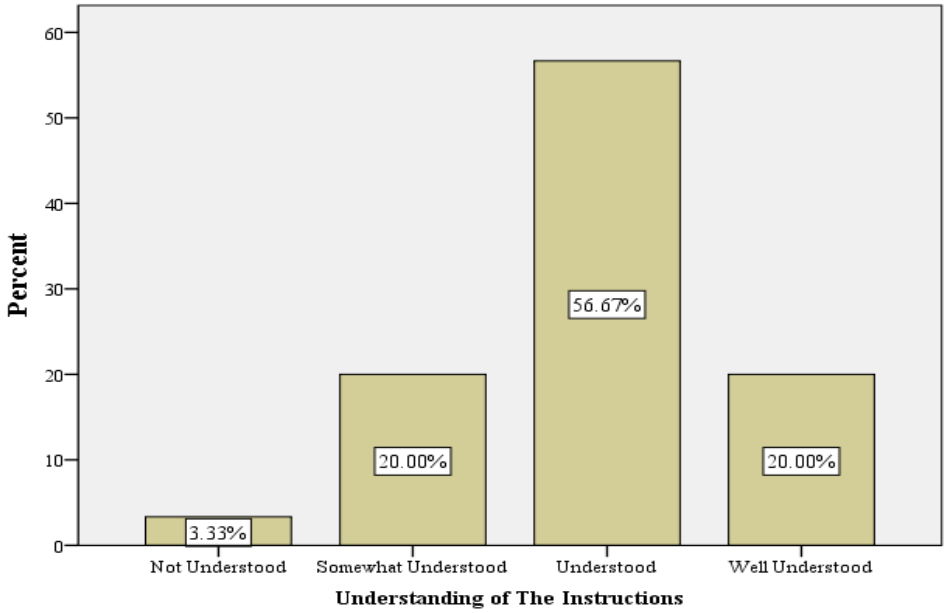


Figure 7: participants' scores for the understanding of the Instruction

Table 17: Scores of the participants' responses for the understanding of response choices

	Frequency	Percent	Valid Percent	Cumulative Percent
Somewhat Understood	6	20.0	20.0	20.0
Understood	15	50.0	50.0	70.0
Well Understood	9	30.0	30.0	100.0
Total	30	100.0	100.0	

On the understanding of the response format of the translated questionnaire also, the scores of the participants show that no

participant stated that he/she did not understand the response choices of the questionnaire. Six participants (20%) indicated that they ‘somewhat understood’ the response choices of the questionnaire, 15 (50%) ‘Understood’ the response options and the remaining nine (30%) indicated that they ‘understood’ the translated response options ‘very well’. The participants’ scores for the understanding of the translated response choices are presented in the following bar chart.

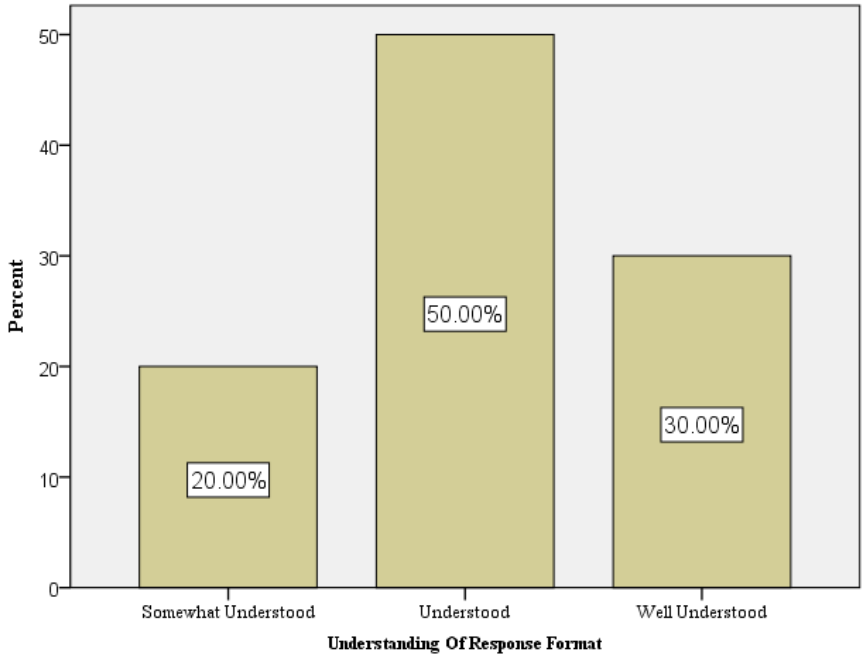


Figure 8: Participants Scores for the Understanding of Response Choices

Table 18: Scores for the participants' responses for the understanding of the content of the questionnaire

	Frequency	Percent	Valid Percent	Cumulative Percent
Not Understood	2	6.7	6.7	6.7
Somewhat Understood	6	20.0	20.0	26.7
Understood	13	43.3	43.3	70.0
Well Understood	9	30.0	30.0	100.0
Total	30	100.0	100.0	

On the overall understanding of the content of the translated Hausa version of the questionnaire (APAIS-H), the participants' scores revealed that two (6.7%) of the participants scored that they 'did not understand' the content of the questionnaire and six (20%) 'Somewhat understood' it. On the other hand, 13 (43.3%) of the participants revealed that they 'understood' the content of the questionnaire while the remaining nine (30%) revealed that they 'understood' the content of the questionnaire 'very well'. The data on the participants' understanding of the response format is presented in the following bar chart

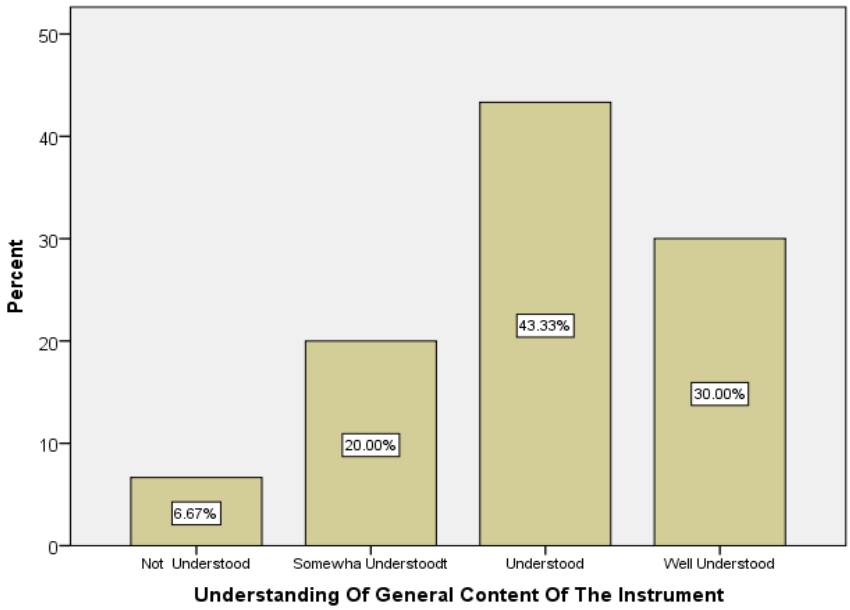


Figure 9: Participants' Scores for the Understanding of the Content of the Questionnaire

5.18 **Psychometric testing**

The participants' scores on the Hausa translated version of the scale were used for psychometric evaluation to determine the reliability index of the APAIS-H. Principal component analysis (PCA) was performed to explore the underlined constructs of APAIS-H. As with the original questionnaire, a three factor structure emerged- anxiety related to anaesthesia, anxiety related to surgery and patients desire for information- each factor having two items. Item-total statistics for anxiety related to anaesthesia sub-scale shows a Cronbach's alpha of 0.812 and 0.822 respectively, while alpha values of 0.802 and 0.789 were revealed for the anxiety related to surgery sub-scale. For the information desire sub-scale, the item-total statistics produced a Cronbach's alpha of 0.762 and 0.801 respectively.

Table 19: Presents summary of the Item-total statistics after performing principal component analysis

ITEMS	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
ITEM1	12.52	2.473	.634	.794	.812
ITEM2	12.38	2.530	.483	.713	.822
ITEM4	12.17	2.291	.648	.667	.802
ITEM5	12.17	4.291	-.006	.738	.789
ITEM 3	10.10	2.33	.452	.623	.762
ITEM6	11.20	3.11	.441	.723	.801

Confirmatory Factor Analysis (CFA) of the translated scale also produced a CFA index of 1.00. Overall, high internal consistency reliability was found on the APAIS-H. Cronbach's alpha (α) of the three factors of the translated Hausa version of the scale range from 0.82, anxiety related to surgery sub-scale to 0.71 for information desire sub-scale.

The rationale for conducting factor analysis is to predict the factor structure of the translated APAIS-H and to compare this with the factor structure empirically derived from the item scores. Factor analysis is a statistical technique used to identify interrelationships among many variables, to ascertain how sets of variables are related. Dunteman (1989) pointed out that confirmatory factor analysis is used to evaluate relationships between the actual and expected structure of the data Dunteman (1989). Factor analysis is therefore a powerful test of content validity of the test items and the tests' construct validity. In the present study, the translated items are meant to tap psychological constructs-anxiety in surgical patients and patients desire for information. The items

in the translated Hausa version are therefore supposed to have inter-correlation and cluster together. The questionnaire items are supposed to have at least modest inter-correlations and should cluster together according to the variables they are designed to measure. According to (Hu and Bentler 1999) the values generated from confirmatory factor analysis statistics also known as confirmatory factor index (CFI) ranges from 0 to 1 with a larger value indicating better model fit Streiner et al. (2015). An acceptable model fit is indicated by a CFI value of 0.90 or greater If a questionnaire is supposed to measure several distinct qualities, then the items should show a clustering corresponding to these various subscales Prudon (2015) and Streiner et al. (2015). Therefore, an empirically found item clustering that agrees to the notions that directed the construction of the Instrument is strong support for these notions as well as the content validity of the items and the construct validity of the questionnaire. Conversely, if the anticipated item clustering varies enormously from the empirically established clustering, the notion behind it could be considered faulty, and/or the test scale an incorrect operationalisation, as long as a good and representative sample has been drawn Prudon (2015). However, if a moderate variance is obtained; such variances could be used to further improvement or for further refinement of the measuring instrument.

5.19 **Discussions**

In the literature published so far, there is no pre-operative anxiety assessment tool translated into the Hausa language to be used in assessing the pre-operative anxiety of Hausa surgical patients. The aim of this study was to translate and adapt the Amsterdam Pre-operative Anxiety and Information Scale (APAIS) to produce a Hausa-language version of this short screening tool available for use by clinicians during pre-operative assessments of elective surgical patients who would not be able to understand the English language version of the instrument. This is important given the fact that the current practice of elective surgery gives little time to the encounter between surgical patients and members of the pre-operative assessment team to conduct adequate pre-operative

assessments and to plan interventions to address the patients' concerns and reduce their pre-operative anxiety before undergoing surgery.

The adaptation and translation of a health instrument is a difficult process. It involves complex and rigorous methodological approaches that require carefully following laid down steps to maintain the content of the instrument, its psychometric properties and above all to retain its validity for the population for which the instrument was adapted (Cassepp-Borges et al. 2010). This difficulty is inherent in the adaptation of a health instrument as there is no single acceptable method that has specified and outlined the procedure through which instruments are to be translated and validated in cultures they did not previously exist in (Borsa et al. 2012). What we have currently are diverse guidelines for the translation of measures put forward by different organisations. These guidelines are meant to be used by clinicians and researchers interested in the translation and cross-cultural adaptation of such measures for clinical use or research purposes. For example, the International Test Commission has developed guidelines for the translation and adaptation of psychological instruments (International Test Commission 2010). The European Commission also produced comprehensive guidelines to be used in the adaptation of health survey instruments (Tafforeau et al. 2005). The Mapi Research Institute, an organisation with expertise in cross-cultural adaptation of instruments, has developed a methodology for linguistic validation of clinical outcome assessment measures, which was published in the Linguistic Validation Manual for Health Outcome Assessments (Acquadro et al. 2012). The World Health Organization (WHO) has also developed a document-process of translation and adaptation of instruments (World Health Organization 2010). All these efforts are geared towards the provision of working documents to help researchers and clinicians

to produce different language versions of scales or instruments that are equivalent in content and meaning in every target culture or country.

The guidelines advocate the use of at least two professional translators. They also emphasise the use of a forward and backward translation method, subjecting the translation to expert panel review, conducting a pilot test and the computation of psychometric properties to establish reliability and validity of the adapted instrument (Tafforeau et al. 2005; International Test Commission 2010; Muniz et al. 2012). These major elements of the guidelines were strictly followed in the translation and adaptation of the Amsterdam Pre-operative Anxiety and Information Scale (APAIS) into the Hausa language.

However, as with any translation study, in the present study, problems were found in the translation of certain keywords of the original instrument resulting in either the two forward translators making completely different or unrelated translations or using many words to translate some items. What was identified as the reason for the discrepancy in the translation was that some medical terms, such as anaesthesia, have no direct equivalent in the Hausa language. This resulted in the two forward translators using different words and phrases to translate the word ‘anaesthesia’. Equally, the word ‘procedure’, which in the original source questionnaire stands for ‘surgery’/‘operation’, was not translated as such by the two translators. Instead, its literal meaning (way of doing things) was considered in the initial translation of the items containing the word ‘procedure’ in them. Such problems were reported to be encountered in translating subject-specific words.

Doornekamp (2011) reported that a major problem in translation of medical terms is the use of incorrect words, errors in writing and writing of ambiguous sentences by translators. The discrepancies in

translation found in this study were resolved during a reconciliation meeting between the researcher and the forward translators. The discrepancies were further resolved by subjecting the translated version of the questionnaire to expert panel review, a technique emphasised in many translation guidelines that is used to assess, evaluate and critique the relevance of potential questions for the adapted and translated instrument. The review panel in the present study, which includes surgeons, anaesthetists, nurses and a language expert, evaluated the translated Hausa version of the instrument to find if the items are appropriate and significant to the population for whom the translation was made and to find out if the arrangements of the questions are also appropriate. They also looked at issues with clarity, focusing largely on the wordings used in the translation, the length of the sentences and ensuring that the technical terms are translated in such a way that the respondents' ages and educational backgrounds are taken into consideration. Where necessary, the panel offered suggestions to change some words or the structure of some sentences in order to improve the quality of the translation. The suggestions offered by the panel were used to produce the final translated Hausa version of the APAIS (APAIS-H).

The translated Hausa version (APAIS-H) was administered to patients awaiting surgical operation. Unlike previous studies that translated the APAIS (Nishimori et al. 2002; Maurice-Szamburski et al. 2013; Mohd et al. 2015), which dwells mainly on calculating the reliability index of their translated versions and comparing it with the original source language version, the present study, in addition to the calculation of the psychometric properties of the Hausa version, is the first study to assess surgical patients' understanding of the translated items, instructions and response format. This was done by placing the translated items, instructions and the response on a 5-point Likert scale, ranging from totally not understood (1), not

understood (2), somewhat understood (3), understood (4) and well understood (5).

The results of item understanding reveal that 80% of the participants have either ‘understood’ or ‘well understood’ the translated items of the questionnaire (APAIS-H). Only 5% reported that they either ‘totally did not understand’ or ‘did not understand’ the translated items of the questionnaire. The remaining 15% of the participants took the middle position and reported that they ‘somewhat understood’ the translation of the items of the APAIS-H. With regards to the understanding of the translated instructions, a total of 77% of participants reported they either ‘understood’ or ‘well understood’ the translation of the instructions; 20% ‘somewhat understood’ and only 3% of participants reported that they did ‘not understand’ the translation of the instruction. Similarly, a total of 80% of the participants ‘understood’ or ‘well understood’ the translation of the response format of the translated Hausa version of the APAIS. The remaining 20% of participants reported that they ‘somewhat understood’ the translated response format. No participant reported that they ‘did not understand’ the translation of the response format. On the general understanding of the content of the translated Hausa version of the scale (APAIS-H), approximately 78% of the participants reported they either ‘understood’ or ‘well understood’ the general content of the translated scale. Seventeen per cent ‘somewhat understood’ and the remaining 2% reported that they ‘did not understand’ the content of the translated questionnaire.

This high response rate obtained in the participants’ understanding of this translation work indicates that there are not many problems with the translation and adaptation of the APAIS into the Hausa language and therefore the scale can be used to assess Hausa-speaking surgical patients’ pre-operative anxiety in the same

manner done with the source language version. The lack of understanding by the participants who reported so was attributed to the fact that seven out of the 30participants, though they speak and use Hausa as a language of communication, are non-native speakers of the Hausa language and the dialect of Hausa language they speak is different from the standard Hausa dialect used in this translation study.

Overall, the participants' understanding of the translated scale shows that approximately 80% of the respondents either 'understood' or 'very well understood' the translated items. The translated Hausa version (APAIS-H) has produced a high reliability coefficient that is similar to the original version. Evaluation of construct validity of the translated Hausa version was done by factor analysis. Factor analysis of the scale, with oblique rotation and Eugene value >1 has shown two factors revealing a total variance of 71%. To determine the reliability and internal consistency of the scale, Cronbach's alpha was calculated. A Cronbach's alpha coefficient of α=0.82 for the anxiety related to surgery sub-scale and α=0.71 for the desire for information sub-scale were obtained from the analysis.

The findings on the reliability index of the adapted Hausa version are very similar to those of the source language version. Moerman et al. (1996) found a Cronbach's alpha of 0.86 for the anxiety related to surgery sub-scale and 0.72 for the need for information sub-scale. Though there is a slight difference in the Cronbach's alpha scores found in this study, compared with the source language instrument, this difference can be attributed to the number of participants used in the two studies. Moerman et al. validated APAIS using 320 participants, while in the current study, 30 participants were used for the validation. However, there is no acceptable standard for what score should be considered a good

Cronbach's alpha coefficient. It is sometimes governed by the theoretical underpinning of the specific scale. But many research methodology experts vouch for a lowest alpha coefficient of 0.65 and 0.8 (or above) as acceptable coefficients (Goforth 2015). Other researches that translated the Amsterdam Pre-operative Anxiety and Information Scale into different languages also found similar, but a little varied, alpha coefficient results compared to what has been obtained in the current study. For example, the Cronbach's alpha calculated for the first translation of the APAIS into another language, Japanese, was 0.84 for the anxiety scale and 0.68 for the need-for-information scale (Nishimori et al. (2002). Similarly, Berth et al. (2007) conducted a German translation of the Amsterdam Pre-operative Anxiety and Information Scale and found a high reliability coefficient for anxiety through factor analysis: Cronbach's alpha = 0.92; desire for information: Cronbach's alpha = 0.86.

The high reliability coefficient found in the translated Hausa version of the APAIS indicates that there would not be a problem with the use of the instrument among the population, for whom it was translated thus, stressing the importance of this short questionnaire in a busy clinical environment.

5.19.1 Strengths of the study

The strength of this study is its originality. This study was designed to fill a gap by producing a Hausa language version of this Amsterdam Pre-operative Anxiety and Information Scale for use by clinicians dealing with Hausa-speaking surgical patients. The study is the first to translate the Amsterdam Pre-operative Anxiety and Information Scale into the Hausa language. Therefore, it has contributed by providing an assessment tool to be used in assessing pre-operative anxiety among Hausa-speaking surgical patients, particularly those whose literacy level is so low that they would not be able to understand the English language version of the scale. The translation followed the standard guidelines

published in the fields of cross-cultural adaptation of health instruments. Most of the translation studies conducted to translate the health outcome questionnaire dwell mainly on finding and establishing the validity and reliability coefficients of the translated scales. In the current study, however, apart from the validity and reliability of the translated Hausa version, one unique feature of the current study is that it established the understanding of the translated instrument, the response format and the instruction of how to go about scoring the instrument from the point of view of the participants for whom the translation was made.

5.19.2 Implications for research

The APAIS-H can be used by researchers willing to undertake a study in Nigeria or conduct a cross-cultural study on pre-operative anxiety among the Hausa-speaking surgical patients in other countries where the Hausa language is spoken. The diversity of the population across the world necessitates the need for cross-cultural studies in order to test the effectiveness of pharmaceutical or non-pharmaceutical interventions on patients suffering the same type of health conditions. In recent years, healthcare researchers have engaged in cross-cultural studies to compare results of interventions in order to draw inferences from the results of studies conducted in different parts of the world. To satisfy this need for the internationalisation of healthcare research, assessment tools and the methodologies used to collect data must be designed in such a way that the data they generate are valid and reliable. However, obtaining valid and reliable research results across different cultural groups is not an easy job. A major requirement is to use the same tools across the different cultures of interest. By adapting and translating the Amsterdam Pre-operative Anxiety and Information Scale into the Hausa language, a tool has now been made available for researchers interested in conducting studies to compare data on pre-operative anxiety obtained from Hausa-

speaking surgical patients. This will allow for objectivity in the research for the reason that the same tool that measures the construct on the bases of the same methodological and theoretical standpoints is used to collect the data. Borsa et al. (2012) stressed that the use of adapted questionnaires naturally gives us the opportunity to generalise the findings of our studies and also permits us to examine differences among different study populations from different cultural backgrounds.

5.19.3 Implications for clinical practice

In recent years, the emphasis on elective surgery, in which patients spend less time in hospital, has necessitated the need for instruments that require less time to administer in order to assess pre-operative anxiety. Given the high population of Hausa-speaking people in Nigeria and other sub-Saharan African countries, coupled with the low literacy level among the Hausa-speaking population, translating this short, standardised, valid and reliable instrument into their own language will help clinicians working with Hausa-speaking surgical patients to quickly assess their pre-operative anxiety, particularly those patients who cannot read and understand the English language version of the scale.

The translated Hausa version of the Amsterdam Pre-operative Anxiety and Information Scale (APAIS-H) can be a valuable tool for clinical practice. The APAIS-H can provide surgeons, anaesthesiologists, nurses and other members of the pre-operative assessment team with a valid measure of pre-operative anxiety to be used in screening Hausa-speaking surgical patients waiting to undergo surgical operation and to categorise anxious from non-anxious ones. The data will help the clinicians to design and tailor pre-operative anxiety reduction interventions to suit the needs of different patients before, and even after, they have had their surgical operation.

As a normal routine practice, all surgical patients are given standard information on surgery, anaesthesia and their associated risks. But such information given is not based on the understanding of whether the patients are highly anxious patients or not. It is important therefore to screen further for highly anxious patients who may require special intervention and additional information as different patients have different ways of responding to and coping with stressful life events.

According to Miller (2015), patients confronted with a stressful situation, such as surgery, present with two types of coping mechanisms: monitoring and blunting. The monitors, when confronted with a stressful life event like surgery, tend to require detailed information about the event as a way of reducing the uncertainty of the threat they are facing and to increase their feelings and sense of control over the situation. Such individuals are characterised as more demanding patients and therefore they are more likely to be less satisfied with the interventions and the information they receive. Conversely, blunting patients clearly dodge negative or anxiety-provoking health information and are therefore pleased with even a little information and attention given by the clinicians or medical team. The information desire sub-scale of the APAIS-H can serve as a better tool to screen and categorise Hausa-speaking surgical patients along the monitoring-blunting dimension so as to provide them with the required information to meet their individual needs. Additionally, by screening and sorting patients by their pre-operative anxiety levels, even the administration of sedative pre-medication can be selectively done in such a way that only highly anxious patients who need them will be administered these drugs instead of administering them to every patient as used to be the general practice.

5.19.4 Implications for policy

Given the observed effects of pre-operative anxiety on surgical patients as reported in the literature, it is vital for the hospital where this study was conducted to make it a policy that, for any patient to undergo surgical operation, assessment of their pre-operative anxiety must be conducted so as to plan pre-operative anxiety reduction intervention that will suit the individual patients' needs. As at the time of collecting data for this study, no standard pre-operative anxiety assessment is carried out for patients undergoing any form of surgical operation. The authorities of the hospital should make it a policy that pre-operative anxiety assessment is carried out on each patient so that interventions appropriate to the patients' needs will be planned and administered along with the routine care which is mostly centred on the physical aspect of the care.

5.20 **Limitations of the study**

A major limitation of this study is that fewer participants were used to validate the translated Hausa version of the scale than have been used in most of the studies that translated the APAIS. However, given the fact that no mention of the number of participants to be used to validate a translated instrument was made in the published guidelines for the translation of health outcome measures, the 30 participants used in this study is a good number as it has produced a reliability index similar to what has been found by other studies that translated the same scale. The study only sought to establish how the participants of the study understand the translation of the questionnaire items and the response format, as well as the instructions. No data has been collected from the clinicians who are the potential users of the translated questionnaire about their willingness or otherwise to use the translated instrument. There is the need to find out from the clinicians whether or not they are ready to accept and make use of the translated Hausa version of the scale in their clinical practice. Another limitation for this study is that the original source

questionnaire was not only designed to assess the anxiety of patients undergoing elective surgery, it was meant for the assessment of the pre-operative anxiety in general. Using only elective surgical patients to validate the translated Hausa version of the scale weakens its general purpose. However, even when used on elective surgical patients, who may be regarded as less anxious, the Hausa version was able to capture their pre-operative anxiety; an indication that the translated version is serving the purpose it was meant to serve.

5.21 **Summary of the chapter**

The aim of this chapter was to translate the Amsterdam Pre-operative Anxiety and Information Scale into the Hausa language, such that the Hausa version of the scale–APAIS-H –will be semantically and conceptually equivalent with the original source language version. Therefore, emphasis was paid to the process of translation and how the translated instrument will be 'understood' by the population for whom it was translated. The translation process followed the forward-backward translation method, reconciliation meeting by the two forward translators and the researcher, and expert panel review. In all these stages, modifications were made as outlined in the guidelines for translation of health instruments. The translated Hausa version was finally administered to 30 elective surgical patients in order to find out their understanding of the translated items, the instructions, the response format and the overall content of the translated questionnaire. To measure the participants' understanding of the translation and the content of the translated questionnaire, both the items, the instructions and response format were placed on a 5-point Likert scale rating their understanding from 1 (totally not understood), 2 (not understood), 3 (somewhat understood), 4 (understood) and 5 (well understood).

The findings of item understanding show that 80% of the research participants have either ‘understood’ or ‘well understood’ the translated items of the questionnaire (APAIS-H). Only 5% reported that they either ‘totally did not understand’ or ‘did not understand’ the translation of the items of the questionnaire, while the remaining 14% of the participants reported that they ‘somewhat understood’ the translated items of the APAIS-H.

Also, the participants’ scores for the understanding of the translated instructions revealed that a total of 76.7% of participants ‘understood’ or ‘well understood’ the translated instructions; 20% ‘somewhat understood’ and only 3.3% of participants reported that they ‘did not understand’ the translated instruction. Similarly, 80% of the participants ‘understood’ or ‘well understood’ the translated response format of the translated Hausa version of the APAIS. The remaining 20% of participants reported that they ‘somewhat understood’ the translated response format of the questionnaire. No participant reported that he/she ‘did not understand’ the translation of the response format of the questionnaire. On the general understanding of the content of the translated Hausa version of the scale (APAIS-H) there was a similar result with what was obtained with the items, instruction and response formats. A total of 73% of the participants reported they either ‘understood’ or ‘well understood’ the content of the translated scale. Twenty per cent ‘somewhat understood’ and the remaining 6.6% reported that they ‘did not understand it’.

Aside from the translation and emphasis on understanding of the scale, the present study has shown that the translated Hausa version of the APAIS-H has good psychometric properties, similar to the original source language version. Factor Analysis (CFA) of the translated scale produced a CFA index of 1.00. Overall, high internal consistency reliability was found on the APAIS-H.

Cronbach's alpha (α) of the three factors of the translated Hausa version of the scale ranges from 0.82, anxiety related to surgery sub-scale to 0.71 for information desire sub-scale.

6 PREVALENCE OF PRE-OPERATIVE ANXIETY AMONG HAUSA SPEAKING PATIENTS UNDERGOING ELECTIVE SURGERY

6.1 Introduction

This chapter sets out to answer the research questions:

How prevalent is pre-operative anxiety among Hausa-speaking surgical patients undergoing elective surgery? What are the specific things elective surgical they feared most about their planned surgery and why?

Rationale- preoperative anxiety is a serious problem among surgical patients. There is paucity of data about the prevalence of preoperative anxiety among the Hausa speaking surgical patients. Research on the prevalence of preoperative anxiety will provide information on the burden of preoperative anxiety in the population investigated in the part of Nigeria where the study was conducted. Counts of the number of patients affected with preoperative anxiety are required to plan appropriately for their health care needs. Prevalence estimates are useful clinically by providing context for diagnostic decision-making. Knowing that preoperative anxiety is much more common among surgical patients, data on prevalence of preoperative anxiety can also be used to compare the burden of preoperative anxiety across locations, time periods or surgical cases. The data can be used to sort patients into highly anxious, moderately anxious and non-anxious patient groups so that interventions appropriate to the patients' levels of anxiety can be offered to help the patients.

The chapter therefore start with a brief explanation of the concept of anxiety and pre-operative anxiety is given. This is followed by a literature review on the sources and prevalence of pre-operative anxiety among surgical patients, in which the most common

sources of pre-operative anxiety are discussed. There is a section describing the methodology used in the study to collect the data on prevalence of pre-operative anxiety in patients undergoing elective surgery. This sub-section describes the study area, narrowing it down to the hospital setting where the data was collected. This is further followed by a sub-section describing the sampling method, how the participants were recruited, inclusion and exclusion criteria, the instrument used to collect the data and the procedure for data collection. There is also a sub-section in which the findings of the study are presented. In this sub-section, the participants' pre-operative anxiety scores are presented, and summary tables and bar graphs are plotted for easy visualisation of the scores.

Anxiety is a general term used to describe indiscriminate and blurred feelings of fear, uneasiness and discomfort that emerge as an overreaction to circumstances subjectively perceived as threatening (American Psychiatric Association 2013). Anxiety has also been described as a normal emotional reaction to internally or externally occurring stressful life events that are responsible for behavioural, cognitive and physiological reactions (Starcevic et al. 2009). The externally occurring stressful life events could emerge from the environment, through such factors as temperature, crowding and relationship difficulties with other people. Stressors could also originate from an individual's internal environment in the form of sensations of pain or other physical and psychological problems. Although anxiety is a common problem that most people experience from time to time, there are individual differences in how people experience and exhibit it. Some people experience anxiety more often than others and, because of its unpleasant nature, people often fear the uncomfortable experience it brings. For some people, the frequent worry and the distressing physical and psychological symptoms accompanying anxiety are indicators of debilitating health problems that may negatively affect their lives

(Moodjuice 2015). Such fears cause the anxious individual to continue to experience feelings of anxiety, creating a vicious circle.

Anxiety during the pre-operative period is a major problem among surgical patients. Pre-operative anxiety is described as an incapacitating state of uneasiness, tension, apprehension, dread and nervousness disproportionate to the threat of surgery being confronted (Pritchard 2009a; Ali et al. 2014). Studies have shown that the prevalence of pre-operative anxiety is estimated at between 60%–80% among western surgical patients (Matthias and Samarasekera 2012). Gangadharan et al. (2014) conducted research to evaluate the levels of anxiety among pre-operative patients before elective surgery. Using Spielberger's state-trait anxiety inventory (STAI) to measure the participants' levels of anxiety, the results of the study revealed that 60% of the patients presented high anxiety; 30% reported moderate anxiety; and 10% reported low anxiety prior to their surgery. In another study, Akinsulore et al. (2015a) assessed pre-and post-operative anxiety among elective major surgery patients. Fifty-one adult patients arranged for elective surgery in a tertiary hospital in Nigeria were investigated. Pre-operative anxiety was evaluated a day before and after their scheduled surgery using a standardised questionnaire–the state version of the state-trait anxiety inventory (STAI-S). The findings revealed that 51% of the participants had exhibited significantly high pre-operative anxiety, whereas 15.7% presented with significantly high post-operative anxiety. Similarly, (Jafar and Khan 2009) studied the frequency of pre-operative anxiety in Pakistani surgical patients. The aim of the study was to measure how frequent pre-operative anxiety occurs among surgical patients and to correlate the visual analogue scale (VAS) and the state-trait anxiety inventory (STAI). The study results revealed that 62% of the total participants were significantly anxious pre-operatively.

Pre-operative anxiety remains a source of acute stress that disrupts the patients' attention and concentration and affects their overall experience of the surgery. Numerous researchers have reported different causes of pre-operative anxiety among surgical patients. Negative expectations of what may happen intra-operatively or post-operatively, and the fear of pain, fear of body mutilation, loss of control and freedom, are documented as some of the causes of anxiety among surgical patients (Bailey 2010; Aziato and Adejumo 2014). Other causes of pre-operative anxiety are signs of causal diseases such as diabetes and hypertension, information from family members and friends, and past experience of anaesthesia and surgical operations (Wakim et al. 2010). Perks et al. (2009) found that common causes of pre-operative anxiety in surgical patients include waiting for the surgery, expectation of post-operative pain, fear of the operation, as well as the fear of post-surgical incapacitation. Other studies also reported that general anaesthesia, the induction of anaesthesia and being under the anaesthetic mask and fear of needles during the induction of anaesthesia are the most reported sources of patients' pre-operative anxiety (Ward et al. 2007; Jakobsson et al. 2008). In an interview conducted with 240 patients scheduled to undergo day surgery, van den Berg et al. (2005) found that adult day surgery patients were more comfortable with inhalation induced anaesthesia than intravenous induction. Mitchell (2009) also reported that many surgical patients who went through regional and local anaesthesia were anxious about waking up in theatre.

The effects of pre-operative anxiety have also been studied and reported in the literature with some studies showing both psychological and physical consequences on the patients. Pritchard (2009a) reported that psychological effects of pre-operative anxiety in some surgical patients include irritability, hostility, unfriendliness and being highly demanding and they also develop more attention-

seeking behaviours. The physical effects of pre-operative anxiety include physiological changes which affect the functions of the central nervous system and the immune system. It has been reported that pre-operative anxiety increases the release of catecholamine, resulting in physical changes such as increased heart rate, narrowed blood vessels, hyperventilation and blood setting with fast coagulation. Catecholamine is released to prepare the body for 'fight or flight' in response to a physical threat. A higher release of catecholamine causes medical problems like muscle tremors, diabetes, heart attack and stroke. Higher catecholamine in the body decreases the functions of the immune system, causing susceptibility to opportunistic infections and prolonged surgical wound healing (Wetsch et al. 2009). In some patients the physical manifestation of pre-operative anxiety is in the form of dizziness or tiredness, irregular respiration and exaggerated feelings of pain (Bilberg et al. 2012). Some patients may feel wobbly or shaky, present with headache, stomach upset or diarrhoea, nausea and vomiting, and difficulty in the induction of and poor responses to anaesthesia (NHS 2015). Such symptoms can lead to a despondent feeling, lack of energy and motivation, which if not controlled, can progress to a feeling of depression (Willson and Veale 2009: P-9). Bilberg et al. (2012) explained that balance functioning and emotions have similar neurological pathways. Therefore, extended dizziness and imbalance in most surgical patients are caused by pre-operative anxiety. Because pre-operative anxiety affects the functions of the immune system, it causes susceptibility to opportunistic post-operative infections and the inflammation of the surgical site, thereby leading to the consumption of higher doses of antibiotics and analgesics (Pritchard 2009b; May 2014). The cumulative effects amount to delaying the discharge of patients from hospital and increasing their cost of medication.

6.2 Method:

6.3 Sampling method

A convenience sampling method was used to select the participants of the study. Robson (2011) described convenience sampling as the sampling method that consists of selecting the nearest and most convenient people to serve as the research participants. The process is to be continued until the researcher has recruited the required number of research participants needed for the study.

6.4 Inclusion/ exclusion criteria

To be included in the study, a participant had to be scheduled to undergo elective surgery, be above the age of 17 years and able to sign a consent form. Another criterion for inclusion was willingness for voluntary participation. On the other hand, those excluded from the study were participants who were below the age of 17 years, unwilling to participate voluntarily, unable to sign a consent form or not scheduled to undergo elective surgery.

6.5 Recruitment of participants

In the hospital setting where the study was conducted, elective surgical operations are performed twice a week – that is, on Tuesdays and Thursdays. Patients on the waiting list arrive at the hospital on Mondays and Wednesdays to receive instructions about their operations and undergo other necessary pre-operative preparations. To recruit patients for the study, the researcher was based in the consulting clinic where patients on the waiting list come to see the surgeons or nurses before the day of their scheduled surgical operations. After consulting with their doctors, surgeons or nurses, the patients were informed about the study by their clinicians (mostly the surgeons) and then directed to meet the researcher. The researcher then informed the patients about the research and sought their participation. Patients who agreed to participate were enrolled and given identification numbers. Consent

forms and information sheets containing details about the research and what was required as they participated in the study were also given to them to re of the participants, data was collected during two time periods: during the evening before the scheduled surgery and on the morning of the day of their surgical operation ad and sign. The participants completed the consent forms and were reminded that they retained the right to discontinue participation in the study at any time and that this would not in any way affect the service they received in the hospital. Through this process, a total of 47 participants were contacted between September, 2016 and February, 2017 out of which 30 participants consented and were recruited to participate in the study. Of those who did not consent, 11 were female and the remaining 6 were male. Various reasons were offered for not accepting to consent. Some stated that they don't want to be involved in the study, others refused because the study has nothing to do with the illness that brought them to the hospital.

6.6 **Instrument**

The instrument used in this study to collect data from the participants is the translated Hausa version of the Amsterdam Pre-operative Anxiety and Information Scale (APAIS-H). APAIS was developed by Moerman (1996) to serve as a short screening tool to be used by clinicians in assessing the pre-operative anxiety of patients undergoing surgical operation. The instrument has been used in different clinical settings and for different research purposes and it has been found to be a valid and very reliable means of measuring pre-operative anxiety. This scale was translated into the Hausa language by the researcher as part of the design of this study. The translation was carried out by two independent professional translators using the forward-backward translation method, synthesis of the forward translation and expert committee review before arriving at the final translated Hausa version. The

translated Hausa version was then administered to real patients scheduled for elective surgery. The data collected was used to calculate the validity and reliability indexes of the translated Hausa version of the scale (APAIS-H). Psychometric evaluation found the scale to be highly reliable, with Cronbach's alpha 0.82, which was similar to that of the original one developed by Moerman et al. (1996). The pilot study participants were also questioned to indicate their level of understanding of the items, instructions and response format of the translated Hausa version of the questionnaire. The responses obtained for each item indicated that it was either understood or very well understood.

6.7 Procedure for data collection

Data collection occurred in the hospital ward environment, which was reasonably free from distractions. For each of the participants, data was collected during two time periods: during the evening before the scheduled surgery and on the morning of the day of their surgical operation. In either case, each of the participants was given the APAIS-H questionnaire to read and score by himself/herself. A total of twelve participants, (nine male and three female) that could not read and understand the questionnaire by themselves had it read to them by the researcher and their responses were recorded according to their choices. After responding to the questionnaire during the evening before the day of their surgeries, participants were also interviewed by the researcher to find out the specific things they feared most about their planned surgery and why. Participants were asked: is there any particular thing you fear most about the surgery you are about to undergo? Why do you have fear of the thing(s) you fear?

6.8 Findings: Pre-operative anxiety

6.9 Quantitative data

The data collected from the participants was used to prepare summary tables that summarised the scores to display a general pattern of their levels of pre-operative anxiety in accordance with the PAIS-H's anxiety and the need for information subscales. For the two subscales, the summary table shows the frequency and percentage of the participants who have low, moderate or high pre-operative anxiety. Finally, an all-encompassing summary table which summarises the full scale pre-operative anxiety scores of the participants is presented to show the general level of the participants' pre-operative anxiety.

Table 20: scores of participants' responses for anxiety related to anaesthesia subscale

Anxiety Related to Anaesthesia- Evening Before the Surgery Day			**Anxiety Related to Anaesthesia - Morning of the Surgery Day**		
Levels of Anxiety	Frequency (N)	Per cent (%)	Levels of Anxiety	Frequency (N)	Per cent (%)
Low	13	43.3	Low	5	16.7
Moderate	10	33.3	Moderate	6	20.0
High	7	23.3	High	19	63.3
Total	30	100.	Total	30.	100.

The table above present data on the participants' levels of pre-operative anxiety related to the fear of anaesthesia during the evening before and on the morning of each participant's surgery. From the table, it can be seen that during the evening before the surgery day, most of the participants' levels of anxiety related to anaesthesia were between low and moderate levels. A total of 13 (43.3%) participants presented with low anxiety related to anaesthesia, ten (33.3%) had a moderate anxiety level, while only seven (23.3%) appeared to have high anxiety related to anaesthesia. On the other hand, on the morning of their scheduled surgery, the data collected reveals that only five (16.7%) participants presented with low levels of anxiety related to anaesthesia, six (20.0%) had moderate anxiety, while a significant number (19 – 63.3%) of the total number of participants presented with a higher level of anxiety related to anaesthesia. The following bar charts present the participants' anxiety related to anaesthesia.

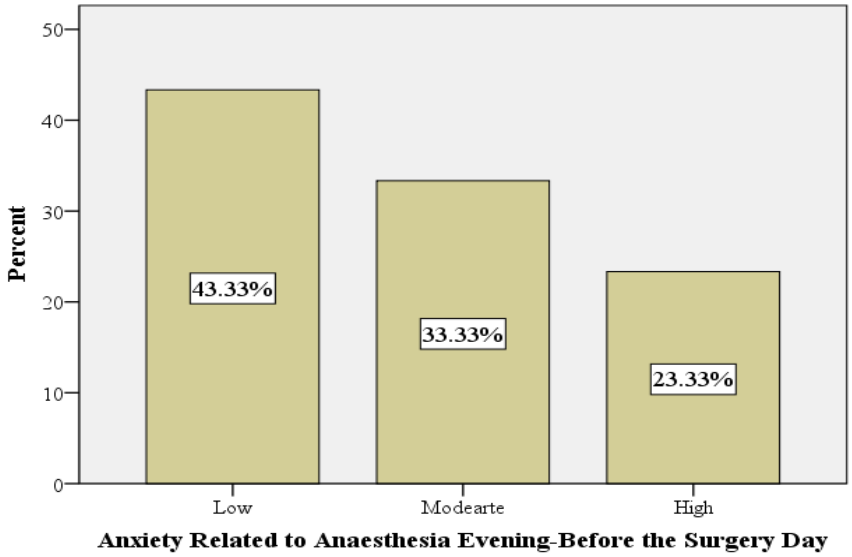


Figure 10: Participants' Anxiety related to anaesthesia in the Evening before the Day of Surgery

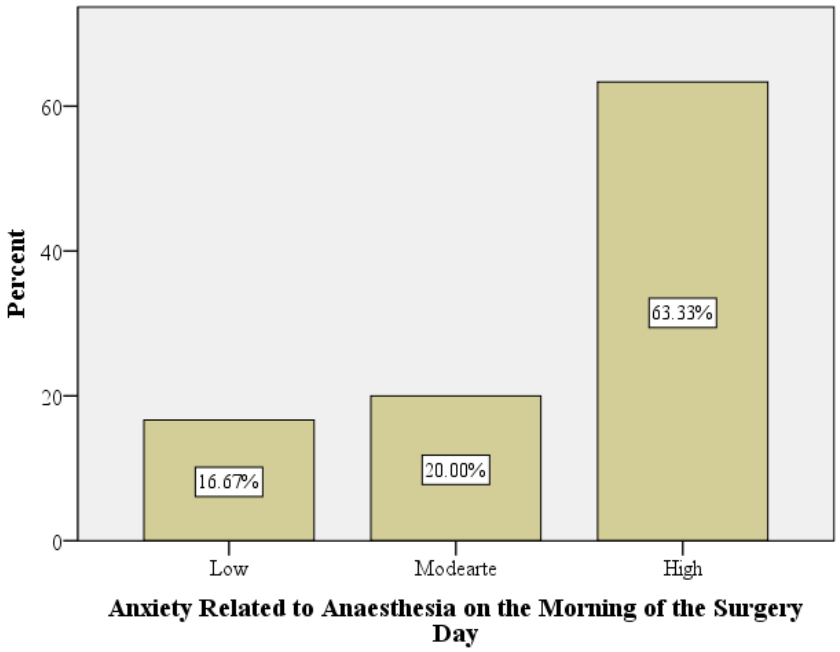


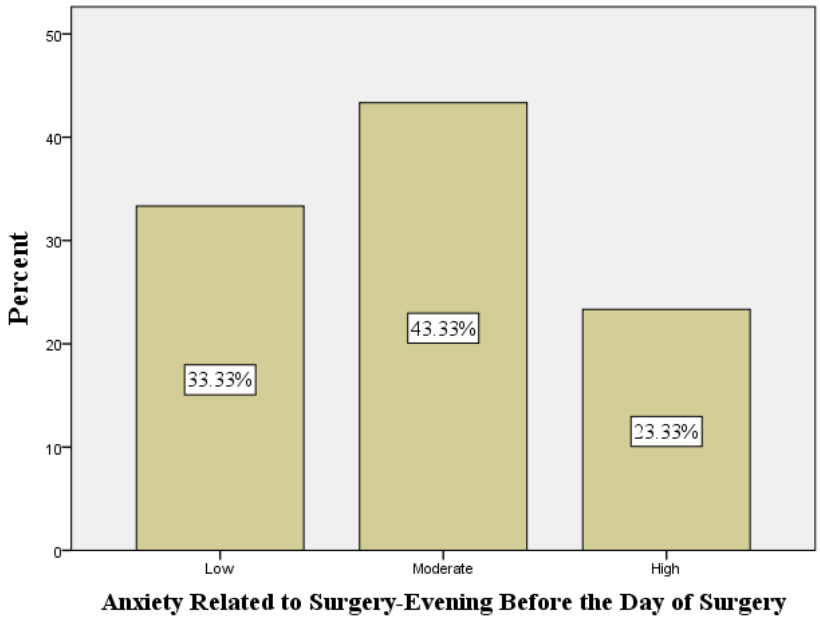
Figure 11: Participants Anxiety related to anaesthesia in the Morning of the Surgery Day

Table 21: scores of participants' responses for anxiety related to surgery subscale

Anxiety Related to Surgery - Evening Before Surgery Day			**Anxiety Related to Surgery- Morning of Surgery Day**		
Levels of Anxiety	Frequency (N)	Per cent (%)	Levels of Anxiety	Frequency (N)	Per cent (%)
Low	10	33.3	Low	4	13.3
Moderate	13	43.3	Moderate	8	26.7
High	7	23.3	High	18	60.0
Total	30	100	Total	30	100

The table above presents data on the participants' levels of pre-operative anxiety related to the fear of surgical operation collected during the evening before and on the morning of each participant's scheduled surgery. It can be discerned from the table that, in the evening before their scheduled surgery, ten (33.3%) participants had low levels of surgical anxiety, 13 participants (43.3%) presented with moderate anxiety, while seven participants (23.3%) reported having high levels of anxiety related to surgery. Conversely, on the morning of the day of their scheduled surgery, the participants' APAIS-H scores show a remarkable difference in anxiety related to surgery sub-scale. Of the 30 participants, only four (13.3%) reported having low levels of anxiety related to surgery; eight participants (26.7%) presented with moderate surgical anxiety and a greater proportion (18, 60%) of the participants recorded having high levels of anxiety related to surgery. In summary, a total of 23(76.6%) participants reported either low or moderate anxiety related to surgery during the evening

before their surgery, while only seven (23.3%) participants presented with high surgical anxiety. On the other hand, only 12 (40%) out of the 30 participants presented with both low and moderate anxiety related to surgery on the morning of their scheduled surgery, while 18 (60%) participants showed high levels of surgical anxiety on the morning of the day of their surgical operation. The following bar graphs represent the data presented in the table above.



A.

Figure 12: Participants Anxiety Related To Surgery in the Evening before the Surgery Day

B.

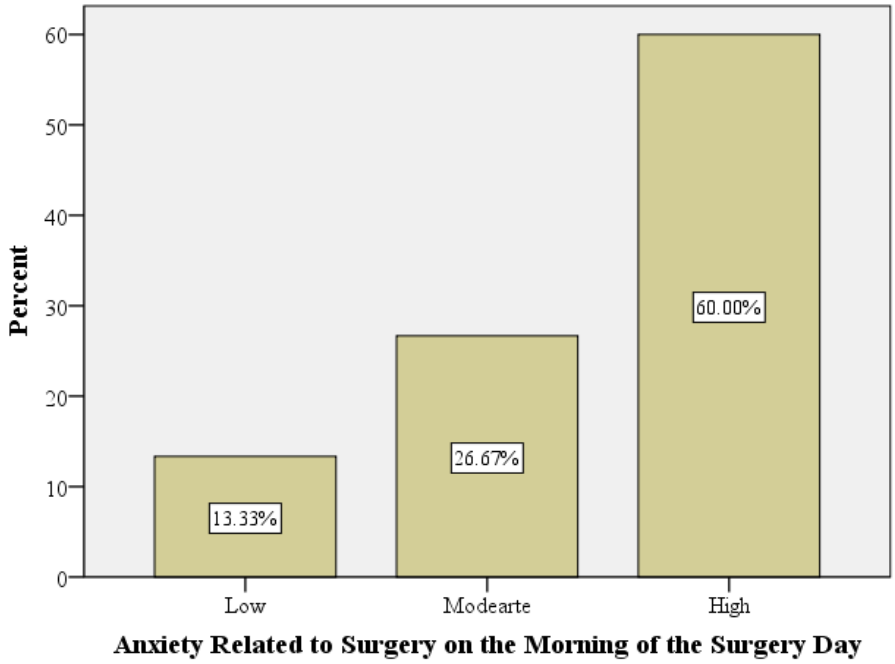
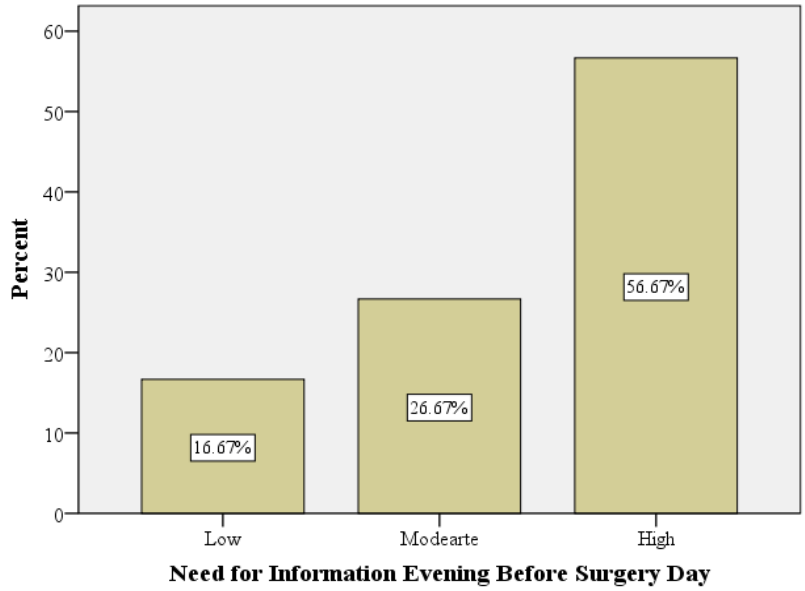


Figure 13: participants' anxiety related to Surgery in the Morning of the Surgery Day

Table 22: scores of participants' responses for the need for information about the surgery subscale

Need for Information-Evening Before Surgery Day			**Need for Information-Morning of Surgery Day**		
Levels of Info. Desire	**Frequency (N)**	**Per cent (%)**	**Levels of Info. Desire**	**Frequency (N)**	**Per cent (%)**
Low	5	16.7	Low	-	
Moderate	8	26.7	Moderate	7	23.3
High	17	56.7	High	23	76.7
Total	30	100	Total	30	100

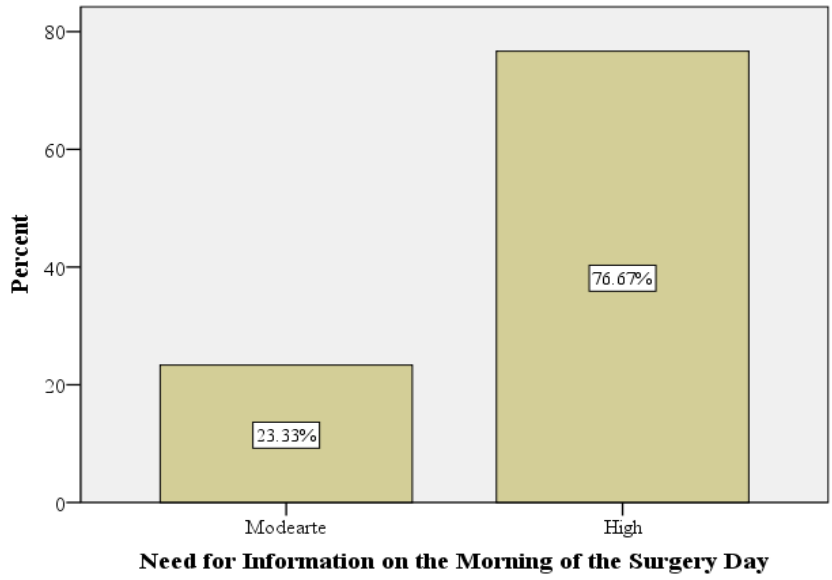


A.

On the information desire sub-scale, the data collected from the participants revealed that, during the evening before the day of their scheduled surgery, only five participants (16.7%) had low desire for information about their surgery, eight participants (26.7%) showed moderate desire for surgical information, and a high number of participants (17 – 56.7%) reported a higher need for information about their surgery. On the other hand, on the morning of the day of their surgery, no patient reported having low desire for surgical information. Patients reported between a moderate and higher need for information, with only seven patients (23.3%) presenting with moderate need for information, while the remaining 27 participants (76.7%) reported higher desire for surgical information.

The data for desire for surgical information is presented in the bar graphs below.

Figure 14: Participant' need for Information in the Evening before the surgery day



B.

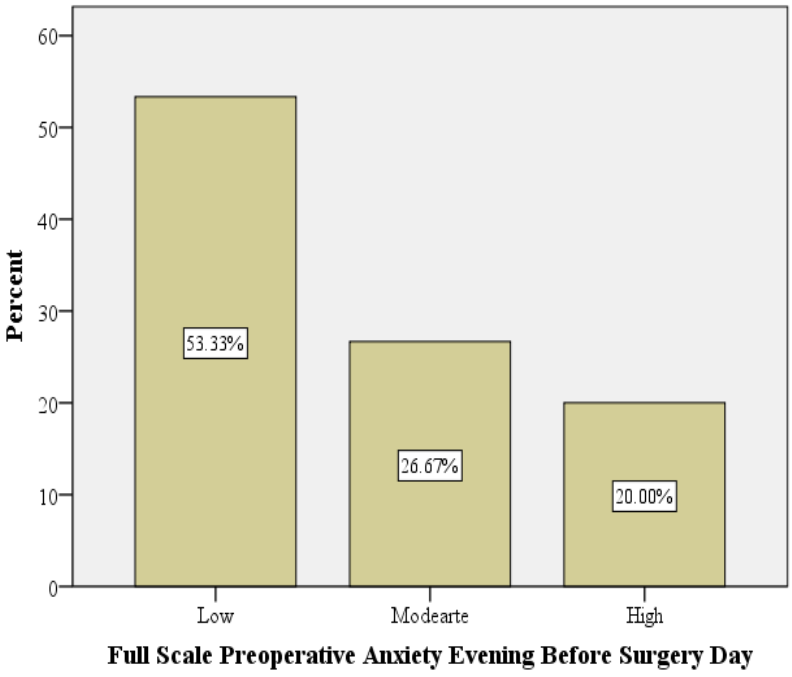
Figure 15: Participant' need for Information in the surgery day

From the above table, it can be seen that, during the evening preceding their scheduled surgery, 16 participants (53.3%) presented with low levels of pre-operative anxiety, eight (26.7%) of the total number of participants had moderate levels of anxiety and six (20%) of the participants recorded having high levels of pre-operative anxiety. On the other hand, on the morning of the day of their surgical operation, participants' measured levels of pre-operative anxiety reveal that only six participants (20%) presented with low levels of pre-operative anxiety, another six (20%) presented with moderate levels of pre-operative anxiety, and a significant number of participants (18 – 60%) presented with high levels of pre-operative anxiety.

Table 23: scores of participants' full-scale pre-operative anxiety collected in the evening before and on the morning of their surgery day.

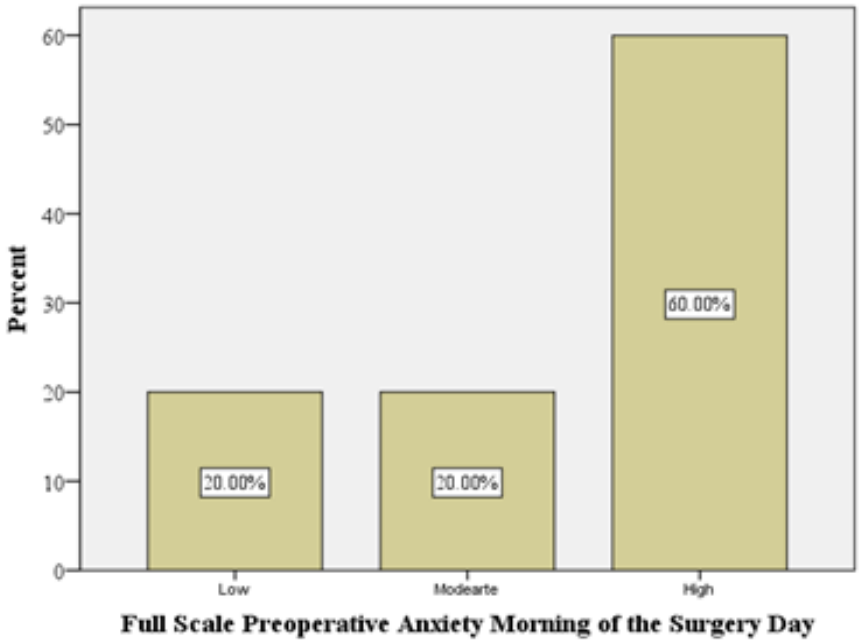
Evening Before Surgery Day			**Morning of Surgery Day**		
Pre-operative Anxiety	**Frequency (N)**	**Percent (%)**	**Pre-operative Anxiety**	**Frequency (N)**	**Per cent (%)**
Low	16	53.30	Low	6	20.00
Moderate	8	26.70	Moderate	6	20.00
High	6	20.00	High	18	60.00
Total	30	100.00	Total	30	100.00

The information participants' pre-operative presented in the table above is depicted in the following charts.



A.

Figure 16: Full Scale Pre-operative Anxiety in the Evening before the Surgery Day



B.

Figure 17: Full Scale Pre-operative Anxiety in the Morning of the Surgery Day

6.10 Qualitative findings

The transcript of the interview conducted on causes of pre-operative anxiety will be presented in the next section.

The interview recordings for all the 30participants of the study were transcribed verbatim. Stuckey (2014) warned us of the importance of verbatim transcription that, if for any reason, verbatim transcription is not conducted, bias can ensue, memory can be lost, flawed or selective and this will not be a substitute for thorough and careful analysis of the real transcriptions. For this reason, it is preferable that the researcher produces full transcripts of the interviews. Following the transcription, inductive content analysis inspired by the work of Elo and Kyangs (2008) was used to analyse the transcribed data. Inductive content analysis is a qualitative data

analysis technique in which the researcher reads through the transcribed materials over and over, such that categories and themes are derived from the data as the researcher becomes more familiar with the data (Elo and Kyngäs 2008). A requirement for effective content analysis is to summarise the data into ideas that define the research phenomenon by generating groups, concepts, a model, conceptual system or conceptual map (Elo et al. 2014). The technique of inductive content analysis consists of three brand stages: preparation, organising and reporting.

At the stage of preparation, the researcher started the analysis by listening to the transcribed audio-recorded interview data to get hold of the participants' responses to the interview question. In the context of this study, the researcher read the transcribed data many times in order to clearly understand what is contained in the data so as to aid in the organisation and coding in the subsequent stages. At this stage, open coding was employed. Open coding consists of labelling ideas, defining and making categories on the bases of their characteristics, dimensions and properties (Khandkar 2009). After open coding of the transcribed data, categories that are similar to one another were merged together to form bigger categories that clearly explain the phenomenon under investigation. Through reading and understanding the text, the researcher interpreted the texts that fit into a category and grouped them together to form the bigger categories. These bigger categories were finally reduced into major themes on the bases of the common words, concepts and characteristics that best described their fundamental importance. Through this process, three major themes emerged from the categories.

Theme 1: The surgery as a source of anxiety

Theme 2: Faulty information about surgery as a source of anxiety

Theme 3: The hospital as a source of anxiety

These major themes were extracted from the categories that emerged from the transcribed data regarding the cause of pre-operative anxiety in the participants of the study. The themes were therefore arrived at based on the understanding of the transcribed texts and the interpretations made by the researcher which resulted in grouping the emerging categories according to their similarities and differences. The table below presents an overview of the major themes and the categories from which they were derived.

Table 24: Presents the themes and the categories from that emerge from the qualitative data

	Category	**Theme**
1	Fear of experiencing pain The operation itself The outcome of the surgery	The surgery as a source of anxiety
2	Information from clinicians Information from others Negative self-thoughts	Faulty information and thinking about surgery
3	The hospital arrangement The hospital staff Waiting for the operation	The hospital as a source of anxiety

Each of the themes is introduced, described and fully explained using quotations from the transcribed interviews to explain them.

6.11 Theme 1 Surgery as a source of anxiety

Theme 1 ‘fear of the surgery’, consist of three major categories: ‘fear of experiencing pain’, the process of surgery and the ‘outcome of the surgery’. These categories are described one after the other and then followed by a summary of the theme.

6.11.1 Fear of experiencing pain

In the interview conducted, research participants have widely reported fear of experiencing pain as a factor responsible for their pre-operative anxiety as can be seen in the following quotes.

Participant 12 reported: *“As a matter of fact I am afraid of the pain after the surgery… even though I was told that the doctor that will perform my operation is an expert, I can’t stop to be always thinking about the operation and the pain after the operation. I can’t stop thinking of what it will be like. I mean the pain, I am very anxious… ” (p12)*

Participant 28 reported: *“…There is also pain associated with the surgery. This is also something to be afraid of. My own surgery involves cutting into my stomach. So there may be real problems, there may be problems like the doctors (referring to surgeons) making mistakes to cut some organs different from the ones they are interested in. That means additional pain for me. So all these things are what I am thinking about and the more I think about them, the more anxious I become”.*

Participant 19 reported: *“…Agreed he (her husband) is to take care of all the medical bills, but he is not the one to suffer the pain. I will suffer the pain so I need to know everything. It is not because I am afraid that something is going to happen to me during the operation but I will be in pain, this is what I fear. I fear the pain”.*

Participant 16 reported: *“You see, fear is natural for someone going in for operation and particularly at this age, you know I must be afraid because it is something that is painful. I know that they will*

administer me some injections to kill the pain in the location they will cut; that means whenever the effect of the injection has gone away, automatically I must feel the pain until the wound is properly healed...

You know surgery is a fearful event that whoever is to be operated will be anxious no matter how brave the person is. …I am afraid because anything can happen during the operation or after. Many people have had bad experience of surgical operation. So I also have to be more anxious because I am not an exceptional person. So I have many reasons to fear the surgery. The most important one is the fear of injection and then the surgery itself because you know cutting your body has to come with pain. So I am afraid because it is an unpredictable situation I am facing."

"Surgery always comes with pain, so you see, even because of the pain one is going to experience anxiety will set in".

Some of the participants considered their pre-operative pain and used it to gauge the pain they may likely experience post-operatively.

Participant 18 said: *"Imagine the pain, the pain I suffer now, how would it be if they cut into this lump? It is a serious thing and I have to be afraid of it, I know what I feel right now. I do not sleep, I don't do almost everything. The growth is disturbing me. So I am afraid of everything".*

Some participants' anxiety about pain is related to specific events in the surgical process. Two participants related their fear of pain to anaesthetic injections. They attributed their source of anxiety to anaesthesia. Both participants seem to have got the negative information about anaesthesia from other people as has been deduced from their accounts.

Participant 21 reported that: *"There are so many things associated with the surgery that one has to think about. Imagine the injection that makes you unconscious (referring to anaesthesia), that injection they said is very painful, if not administered by an expert; while they are trying to save your life, or relieve the pains of surgery, it can easily lead to the death of the patient. There are many reports of death following these type injections." (p21)*

Participant 13 also reported: *"If there is one aspect of the operation I worry about, it is the anaesthesia. They said when anaesthesia is administered to you, you will become somewhat like a dead person before you finally recover from the effects of the anaesthetic drugs. Then, you regain your consciousness. Some people never recover from the anaesthetics, they die."*

6.11.2 Fear of the operation

Participants expressed a great deal of anxiety related to the surgery itself. Most of these anxieties were about the process of undergoing the surgery often brought about by the perception of how the body is going to be cut into. Some patients have reported persistently thinking about the surgery and that these thoughts make them very anxious.

Participant 12 reported: *"…I can't stop to be always thinking about the operation and the pain after the operation. I frequently think about the aftermath of the operation and when I am thinking about it, I find it very difficult to do other things. The thought of this surgery takes much of my time such that I cannot do anything. I keep thinking about it; one thought leads to another one and/or elaborating about possible negative events that might occur after the operation" (p12).*

Participant 7 reported: *"Yes... you said it by yourself; it is surgery, which means one is going to be operated on, you don't need to be*

told, and naturally anybody going for surgical operation must have to be afraid of the whole thing. They will cut into your body so it is necessary to be afraid... let me tell you, since about a month ago, when I and my husband came to see the doctor because of what I am feeling in my stomach, the doctor prescribed some drugs for me and told my husband that we should come back after taking the drugs for further examinations. From that time, I sensed, I will undergo surgical operation, because only I can tell what I feel in my body" (p7).

Participant 14 reported: *"I have never stayed in the hospital for more than four or five hours. So I don't know what it is like, not to talk about having surgical operation. Surgery is a threatening situation. So if you are going for surgery you must be fearful and be anxious of what you are to face particularly if you don't have a history of undergoing surgery" (p14).*

Some participants' surgical anxiety made them think about the likelihood of death or dying as a result of the operation. They harbour and live with the fear that the surgery may result in their eventual death. One participant reported that she sought the forgiveness of her husband and family members so that in the event of her death, she will be in peace in the life after this.

Participant 19 reported: *"… What about death? Death is also something to fear. I must be afraid of it (the surgery) because the possibility of death and dying following surgery is always there. That is why I asked my husband and my family members to forgive me before I enter the surgical room. They have to forgive me so that even if I did not come out of the surgery, I have been forgiven and therefore will have peace in the life after death".*

Patient 1 reported: *"I could not sleep for long time in the night, I used to have occasional dreams during my brief sleep with themes*

about illness, hospital and sometimes I see myself vividly in the surgical room. I continue thinking about the surgery as the time approaches, I try to control my thoughts but as I said, it is a reality and I cannot change it. But oh! I still… I am still very nervous about the surgery, honestly. I have tried to do my best even though I am nervous; I must have this operation done because doing it at this early stage is better."

Participant 16 reported: *"I have tried to resist my fears to see if that can help me get over them. But in fact the fears are so irresistible that I keep remembering about the day–this day I was asked to return to the hospital for the operation. You know if you don't have experience of something even if it does not have to do with your health you will naturally be frightened. So the anxiety is a natural thing if one is having surgical operation."*

6.11.3 The outcome of the surgery

Pre-operative anxiety in some patients is precipitated by their concern about the outcome of the surgery. Concerns over the possibility of some negative outcomes and possible complications have been reported by some participants as a cause of their pre-operative anxiety.

Participant 20 reported: *"…the outcome could be favourable or unfavourable; I mean it could be successful or unsuccessful. Many have had it either way, successful or unsuccessful. But I am praying that it will be easy for me, no complications, and pain and …you know any problems that may arise have to be anticipated."*

Participant 11 stated that: *"…So because of my last experience, even though the current operation is different from the last one I don't believe with what they told me about the outcome of the surgery any more. When I had the last surgery, I was assured that I will be okay, but the way I suffered, hmm. Only God knows. The*

outcome of my last operation was very bad. Therefore, you see, no assurances can make me not to fear surgery any more".

6.12 Theme 2 Faulty Information and thinking about surgery

Information received by patients is a significant contributing factor in causing pre-operative anxiety. Patients have a variety of sources of information about surgery. Some get their information from the hospital staff or directly from their doctors, anaesthetists, surgeons or nurses. Others get their information from relatives and friends who have had surgery before. For the participants of this study, both positive and negative information about the operation or the process of carrying out the operation seems to be an issue triggering pre-operative anxiety. Some patients needed to be told what they will undergo, while others felt such information is not necessary. Some participants reported getting negative information about anaesthesia as their source of anxiety

6.12.1 Information from the clinicians

Participant 21 stated that: *"…this injection (anaesthesia) I would prefer to be operated without having it been administered to me. I have not had it before, but the information I got about it was horrific so I completely hate it. I don't like it. Apart from this, actually there is nothing I can say I am afraid of about the surgery".*

Participant 7 reported: *"What baffles me most and made more anxious is the sudden information that I will have an operation. I came to the hospital on my own, I left my house that I will go and see a doctor because of a small swelling I discovered under my private part. The lump is not paining me anyway, it is just itching but the pain is not very severe. So you see, I think I need to be given information, at least to organise some things in the family and also in the place of work. In fact, I need more information in advance. The way I was given the information makes me very anxious because it is as though the lump can lead to my death."*

Participant 1 reported: *"…that information makes me so fearful because the doctor is the person treating you but is being sceptical of the outcome of the treatment; I think that is worth fearing".*

6.12.2 Information from others

This injection I would prefer to be operated without having it been administered to me. I have not had it before, but the information I got about it was horrific so I completely hate it. I don't like it. Apart from this, actually there is nothing I can say I am afraid of about the surgery. 23

Participant 03 stated: "*…Another thing that worries me is that the doctors don't want to tell you much about the operation. They don't want you to know what you will experience, keeping me in darkness means worrying about the whole process of the operation and that will not help me. I think if I know more about the surgery my fear will be reduced, I will not be afraid of it…"*

Participant 08 stated: *"…he (the surgeon) did not even tell me the money I need to have for the operation. Suppose, if after the surgery, I run short of money to buy the drugs needed for post-operative care, what will I do? Such information is supposed to be given before the time of the surgery so that I can prepare and be ready for whatever challenges*

6.12.3 Negative self-thoughts

Some patients' anxiety is precipitated by their way of thinking about the surgery. Negative thinking about the surgical operation occurs when patients tend to think the worst about the surgery, or decrease their expectations of getting better after the surgery by considering the most horrible possible situations to emerge after the operation.

Participant 26 has such negative thoughts and anticipation of the worst post-operative outcome: *"to be realistic, I will not make it with*

this illness. Illness that calls for operation; I have been thinking about it all these days and I know I will not make it. I will not survive…my biggest worry is about with my kids. When I was coming here [to the hospital] my daughter was crying, I don't even want to have eye contact with her, when I looked at her again I felt like crying too. I guess she (her daughter) may be thinking the way I think as well, that her mother is gone, she will die there in the hospital…the little girl stood there looking at the car until we drove off. So actually my fear is that if they operate on me, I may not survive."

6.13 **Theme 3: The hospital as a source of anxiety**

Participants talked about their fear of the hospital. Though the hospital is a place where treatment is given and cure for illness is achieved, it remains a source of anxiety for some of the research participants. The theme of the hospital as a source of anxiety is made up of three categories: 'the hospital arrangement', 'the hospital staff' and 'waiting for the operation'.

Participant 6 expressed fear of the hospital by stating he dislikes anything having to do with the hospital: *…As I am now, I don't like anything having to do with hospital. That is why I kept telling my children that they should not tell their brother about my illness. I know that when he heard about it he will come and take me to hospital, which I don't want and this is exactly what happen... They told him about it last week and look at it now, he left his business to come to the village, the next day he said we are coming to the hospital. I have tried to resist but they (he and his brothers and even their mother) overpowered me…. I told you I have never been operated on before. In fact I have never slept in the hospital all my life. If not because my children have insisted that we must come to the hospital, I prefer to use traditional medicines and I will be cured. Of course I will be cured; many people don't go to hospital and have*

been suffering conditions more complicated that mine and they got cured with traditional medicines".

Participant 23 reported: *"I am afraid because I am one person that doesn't like to even visit patients in the hospital, and now I am the one who was brought to the hospital not for consultation but for surgical operation, it is indeed a terrible time in my life. Why is it me, what have I done that God will send me this illness?"*

Participant 14 stated: *"…I am scared, very nervous, yes. Because I have never slept in the hospital; I have never stayed in the hospital for more than four or five hours. So I don't know what it is like staying in hospital not to talk about having surgical operation..."*

Participant 26 expressed her fear of the hospital by stating that based on the information she received, this hospital (where the study was conducted) is just interested in operating on patients: *"…the doctors in this hospital always like to be doing operations. Why not think of or give alternative treatments to cure their patients. Since before I become sick, someone told me that this hospital is just about surgery. All they know is operating on people; they don't explore other treatment options. When I was told by my husband that next week we are going to see a doctor in this hospital, what came to my mind was this issue of operation. And now I have confirmed it by myself that all they do in this hospital is to operate on people. Even though my illness is not a complicated one, I cannot dismiss the possibility of having a problem after the surgery. I am very anxious because of this information I got about what goes on in this hospital".*

Participant 2 narrated his fear of the hospital in this way: "…In fact I fear everything, everything about this surgery.

"Let me tell you, since my childhood I naturally do not want seeing the doctor or visiting a hospital. I have a very strong fear of the

hospital. When I was young, I used to hide my sickness so that I will not be taken to the hospital. But you know parents, they understand me and start asking what am I feeling or what was wrong with me. I don't want hospital. I have fear of hospitals and doctors... Whenever I am crying as a young child, my mum used to tell me 'stop crying or I will call the doctor to come and give you injections'. Whenever I hear such threat, I used to shut up. So my fear is generally the fear of any form of medical treatment. I hate taking medicine. Sometimes even the smell of some drugs makes me very uncomfortable or start vomiting".

6.13.1 The Hospital Staff

Some participants have expressed and attributed their pre-operative anxiety to the attitudes and behaviours of some hospital staff. The manner in which the hospital staff interacted with and reacted to them sent bad signals to them which were interpreted negatively and caused some kind of fear in them.

Participant 11: *"…Obviously I am concerned about the pain… pain I am not sure… the staff of the hospital also make me anxious of the situation. One staff came in this afternoon, asking me whether I have prepared for the work. Why such question? If I am not prepared I won't come to the hospital. Really I found that question quite disturbing. The way that nurse spoke to me sends me a signal that the surgery could be a problematic one, or could be a painful one. She had a lot of experience and she had seen many patients who had gone through what I am about to go through. That also frightened me seriously".*

6.13.2 The hospital arrangement

Some of the research participants reported that their pre-operative anxiety was triggered by the manner in which the hospital was arranged. Patients awaiting their surgery are kept together in the same ward with patients who have already been operated on.

Seeing those operated on in pain seems to be what triggers their anxiety. Some participants reported seeing a patient brought to the ward just after the operation; that incidence was what set their anxiety off.

Participant 24 reported: *"...Well, I came to the hospital with no fear, obviously no fear. But when I saw a patient brought to the ward from the operating room, I started thinking like is this the same thing I will very soon experience? Am I going to be like this patient, looking like a dead person? So the way I saw that patient brought to the ward instilled fear in my mind. I continue to feel anxious about the surgery. In fact from that time, my heart started beating, I become very restless, going in and out of the ward. I become very fearful only when I was asked to sit on this bed. Apart from that particular patient, there is another one over there [pointing his finger inthe direction] that has been grunting in pain. This patient also made me fear the hospital and the surgery as well. So my coming to the hospital is what makes me anxious of the surgery. Before coming to the hospital, I was not anxious at all. I became anxious here in the hospital after seeing those that have undergone their own surgery and the conditions they are in; I then started thinking that I will also be that condition".*

Participant 23 reported: *"... when they want to operate on you, you will be sedated to the point of unconsciousness, I have seen someone brought out from the surgical room, just after the operation. She was just like a dead person, covered in a likafani (a white cloth Muslims use to wrap dead bodies before they are buried) so one is naturally going to be fearful of the whole thing. I too see myself in the position of that woman lying on bed like a dead person".*

Discussions

The aim of this chapter is to assess the prevalence of pre-operative anxiety among the Hausa-speaking patients undergoing elective surgery.

This chapter addresses the research questions:

- ✓ How prevalent is pre-operative anxiety among Hausa-speaking surgical patients?
- ✓ What are the specific things that cause pre-operative anxiety among Hausa-speaking surgical patients?

By the design of the study, the answer to the first research question is to be obtained through the quantitative data gathered via the participants' responses to the instrument, APAIS-H. The second question is to be answered through the data generated from the participants' interviews. In the process of the discussion, therefore, reference will be made to what has already been published in the literature on the prevalence of pre-operative anxiety and the factors reported as being responsible for pre-operative anxiety. The contributions of this study in relation to the gaps in the literature will be highlighted. Discussion of the limitations and strengths of the study will conclude the discussion section.

6.13.3 Prevalence of pre-operative anxiety among Hausa-speaking surgical patients

In the present study, the results have shown that prevalence of pre-operative anxiety varied among the participants on both the fear of anaesthesia and fear of surgery sub-scales. The patients' anxiety continued increasing as they approached the time of their operation. Scores on the fear of anaesthesia sub-scale have shown that, in the evening before the surgery, 77% of the participants had either low or moderate anxiety; only 23% were highly anxious. However, on the morning of their surgical operation, the fear of

anaesthesia among the study participants increased, with 63.3% of the patients highly anxious about anaesthesia, while the percentage of non-anxious patients dropped to 36.7%. This finding is similar to the study results reported in the literature. Ruhaiyem et al. (2016) reported that the fear of anaesthesia in their study participants was 88.9%. Similarly, (Mavridou et al. 2013) also reported fear of anaesthesia among their study participants. They found that 81% of the patients investigated expressed fear of anaesthesia. The patients' fears were mostly around fear of death following anaesthesia, fear the anaesthesiologist was not qualified or would not be attentive to them during the operation; fear of permanent paralysis following anaesthesia; and being too sleepy or having impaired judgement post-operatively. Also, (Valenzuela Millán et al. 2010) reported that 72% of the 135 patients they studied reported higher pre-operative anxiety which the participants reported was attributed to the fear of anaesthesia.

On the anxiety related to surgery sub-scale, the prevalence of pre-operative anxiety scores appears to be similar to what has been obtained in the anxiety related to anaesthesia sub-scale. A total of 77.6% of the participants of this study reported a low to moderate level of anxiety related to surgery in the evening before their surgery. Only 23.3% reported experiencing high surgical anxiety. On the morning of the surgical operation, 60% of the participants presented with high anxiety, while the remaining 40% reported low and moderate anxiety (13% low; 26.7% moderate).

The full-scale pre-operative anxiety scores of the participants of this study show that anxiety was significantly low in the evening preceding the surgery, with 80% of the participants reporting low and moderate pre-operative anxiety. Only 20% presented with high anxiety. On the other hand, on the morning of the surgical operation, 40% of the participants presented with either low or

moderate pre-operative anxiety, while the majority (60%) reported having high pre-operative anxiety. The findings of the present study are similar to what (Gangadharan et al. 2014) found in their study. Gangadharan et al. (2014) revealed that the majority of their patients (60%) reported high anxiety; 30% presented with moderate anxiety; and 10% reported having low anxiety prior to their surgical operation. Though Gangadharan et al. conducted their study in Saudi Arabia, where the healthcare facilities are of a higher standard compared with the part of Nigeria where this study was conducted, the similarity of the results is a strong indication of the universality of pre-operative anxiety as a problem to be addressed. Similarly, a Nigerian study, using the state-trait anxiety inventory (STAI) (Akinsulore et al. 2015a), also reported findings closely related to those obtained in this study. Akinsulore et al. found that 51% of the patients studied had exhibited significantly high pre-operative anxiety, whereas 15.7% presented with significantly high post-operative anxiety. The patients' mean pre-operative anxiety scores for STAI were statistically significantly higher compared to their post-operative mean anxiety scores (37.73 ± 8.44; p =.001). As with the present study, Akinsulore et al. also found that fear of post-operative complications and the fear of the outcome of the operation, surgical errors through nurses' or doctors' mistakes, and being pricked with a needle were the important factors accountable for pre-operative anxiety among the participants. In another study, which used the same instrument (APAIS) as the one used in this study, a slightly higher prevalence rate of pre-operative anxiety was reported (Matthias and Samarasekera 2012). Matthias and Samarasekera found that the incidence of pre-operative anxiety among Sri Lankan surgical patients was 76.7%.

The high pre-operative anxiety found in the present study's participants could be attributed to many factors. First, in Nigeria, both private and public hospitals demand payment of medical bills

before services are provided. With over 70% of the population living in abject poverty, payment for healthcare expenditure is a serious problem. A recent study in Nigeria found that in Enugu and Anambra States the frequency of catastrophic health costs among families stands at 40% of non-food expenditure. This kind of healthcare expenditure affects people's welfare and will have negative effects on the patients' responses to illness. At present, over 90% of the Nigerian population have no health insurance, even though a National Health Insurance Scheme (NHIS) has been in place since 2006. The scheme covers less than 5% of the Nigerian population and all those covered are found in the formal sector, serving in the federal government. Thus, patients without insurance are left to be treated in the non-performing health system. Such patients solely rely on and are forced to accept living their lives with this poor state of the health service as there is not much they can do to change the situation (Aregbeshola 2016). Therefore, patients with low income levels, as the ones used in the current study, for fear of medical cost alone, are vulnerable to developing anxiety for any illness that warrants going to hospital, not to mention illness that calls for a surgical operation.

6.14 **The need for information**

The need for information among the participants of this study was very high in the two time periods in which the assessments were conducted. The patients' desire for information continues to increase with a higher need for information recorded on the morning of the day of surgery compared to the scores obtained on the evening before the day of surgery. On the evening before the day of surgery, 43% of the patients presented with low or moderate desire for information about their impending surgery, while the remaining 56.7% reported a significantly higher need for information. On the morning of the day of surgery, not even a single patient presented with low desire for information. A total of 23% reported a moderate

need for information, while the remaining 77% were highly in need of information about the surgery. This finding is consistent with Wellala et al. (2012) who found that their participants expressed differences in their desire for information about the type of surgery and anaesthesia they were confronting. In Wellala et al.'s study, 72.5% of the participants needed more information before the induction of anaesthesia and surgery. The finding also reveals that the need for information was higher for female patients (81.93%) compared to male (65.5%). Patients below the age of 30 years desired more information than older patients. This finding shows that there is a relationship between higher need for information and pre-operative anxiety scores. In the same vein, Sjöstedt et al. (2011) reported a similar result of the study they conducted to find out the clinicians' experiences of their patients' needs for information before intra-operative care. The findings established four categories of patients' needs for information about surgery: the need for information to reduce pre- and post-operative anxiety, the need for information for a sense of assurance, information regarding the management of post-operative pain and the need for information about general knowledge of surgery. Keulers et al. (2008) sought the opinions of surgeons and surgical patients about what they regarded as optimum pre-operative information for surgical patients. The finding of the study shows that surgical patients are more interested in information about all areas of the admission as well as the process of surgical operation. Surgeons in this study were convinced that their patients are particularly interested in information related to the types of disease, examination and the operation.

As patients are faced with stressful health challenges such as surgery, they tend to require more information about the planned operation as a way of coping with and avoiding the threat of the surgery. The significance of communication and information

provision to reduce pre-operative fear and anxiety has been well established in the literature (Chow et al. 2015; Wongkietkachorn et al. 2018). But, for elective surgical patients who are prepared to undergo conscious surgery, additional, undesirable information may be voiced involuntarily by the clinicians in the process of casual or technical discussions about the patients' illnesses. Pre-operative surgical patients are characterised by hyper-attentiveness attention and increased vulnerability to suggestion. Under such conditions, such involuntarily spoken words can worsen their anxiety (Caddick et al. 2012).

Miller (1987) proposed the theory of coping which posits that individuals confronting frightening situation such as surgery react to the stress in two major ways–monitoring and blunting. Those with the tendency to react by monitoring (monitors) react by focusing attention on the frightening event and looking for a large amount of information about the event. Blunters on the other hand react by escaping the situation as much as possible. The theory proposes that monitors are more anxious people. The participants with low scores on the need for information sub-scale fit well with what Miller called blunters. Participants with higher scores on the need for information sub-scale are regarded as monitors.

The qualitative interview conducted in this study aims to answer the research question: What are the specific things that cause pre-operative anxiety among Hausa-speaking surgical patients? In the following section, the results of the qualitative findings are discussed. Reference will be made to the data already published in the literature on the factors identified and reported as responsible for the patients' pre-operative anxiety in order to highlight the findings of this study.

Findings from the qualitative interview with the participants are summarised into three major themes, namely: *surgery as a source*

of anxiety, *information about surgery* and *the hospital as a source of anxiety.* These themes will be discussed alongside the evidences already published in the literature indicating factors responsible for pre-operative anxiety in surgical patients.

6.14.1 Theme 1: Surgery as a source of anxiety

This theme was arrived at following a thorough listening to the audio-recorded interview and reading the transcripts produced there from. This led to the grouping of the data into smaller categories which were eventually built into sub-themes and then merged together with the sub-themes to form this overarching theme. These sub-themes are: fear of experiencing pain, the surgical operation and the outcome of the operation. While discussing the theme, quotations from the participants will be brought in to demonstrate how they view and consider what they think and feel is responsible for their pre-operative anxiety.

Most of the study participants reported fear of pain as a major source of their pre-operative anxiety. For example:

Participant 12 reported: *"As a matter of fact I am afraid of the pain after the surgery… even though I was told that the doctor that will perform my operation is an expert, I can't stop to be always thinking about the operation and the pain after the operation. I can't stop thinking of what it will be like. I mean the pain, I am very anxious… " (p.12)*

Participant 16 reported: *"You see, fear is natural for someone going in for operation and particularly at this age, you know I must be afraid because it is something that is painful. I know that they will administer me some injections to kill the pain in the location they will cut; that means whenever the effect of the injection has gone away, automatically I must feel the pain until the wound is properly healed".*

Participant 28 reported: *"There is also pain associated with the surgery. This is something to be afraid of. My own surgery involves cutting into my stomach. So there may be real problems, there may be problems like the doctors (referring to surgeons) making mistakes to cut some organs different from the ones they are interested in. That means additional pain for time. So all these things are what I am thinking about and the more I think about them, the more anxious I become".*

Participant 19 reported: *"Agreed he (her husband) is to take care of all the medical bills, but he is not the one to suffer the pain. I will suffer the pain so I need to know everything. It is not because I am afraid that something is going to happen to me during the operation but I will be in pain, this is what I fear. I fear the pain".*

... "Surgery always comes with pain, so you see, even because of the pain one is going to experience anxiety will set in".

Participant 11: *"Obviously I am concerned about the pain… pain I am not sure…"*

Fear of pain has been reported by many participants of the study as being responsible for their anxiety prior to surgery. This finding shows that the factors responsible for pre-operative anxiety found in this study are similar to what has been found and reported in previous studies. In one systematic review, Bailey (2010) found that in many patients confronting surgical operation, fear of pain, the necessity for surgery, apparent loss of control and change of body image are the frequently reported factors responsible for pre-operative anxiety. Equally, Perks et al. (2009) reported the expectation of post-operative pain, waiting for the surgery and fear of the operation, as well as the fear of post-surgical incapacitation as the most common causes of anxiety among the patients they

studied. Although studies have reported and attributed pre-operative anxiety to the fear of post-operative pain, (Masselin-Dubois et al. 2013)reported a reverse version in their study. They reported that when post-operative pain develops to a state of continuing and prolonged pain, the causes of such pain could be traced to the nature of operation or to some psychological factors like depression and anxiety or pain catastrophising. The findings by Masselin et al. revealed that a mixture of chronic pain and anxiety, and pain amplification, irrespective of the nature of the operation, increases the susceptibility of developing pre-operative anxiety.

In one review and meta-analysis, (Sobol-Kwapinska et al. 2016) reported that the highest psychological variable that correlated with acute post-operative surgical pain (APSP) was pain catastrophising resulting from anxiety. In this review, Sobol-Kwapinska et al. found that all studies that measured catastrophising revealed a significant correlation between catastrophising and acute post-operative surgical pain. Anxiety was found to be the greatest common psychological factor assessed prior to surgery and in most studies both state and trait anxiety were found to be significantly related with acute post-operative surgical pain. Mavridou et al. (2013) also found and reported that, among their study participants, 84% have expressed intense fear of pain. While other studies reported the fear of pain as a source of pre-operative anxiety, a study by (Ali et al. 2014) reported that patients with high levels of pre-operative anxiety are the ones that experienced higher levels of post-operative pain as these anxious patients pay more attention to the sensation of pain. The continuous fear of surgery and post-operative pain may be an issue that fuels an intensified anxiety reaction, which may consequently add to the vicious cycle of anxiety experience and then followed by the experience of pain.

Apart from the fear of pain as a major issue causing anxiety pre-operatively, the participants of this study also expressed intense fear of the surgical operation. The fear of surgery has been reported by many patients, some of whom expressed their fear as a result of their previous experience of surgery. For example, some participants reported the following fear:

"You know surgery is a fearful event that whoever is to be operated will be anxious no matter how brave the person is …I am afraid because anything can happen during the operation or after. Many people have had bad experience of surgical operation. So I also have to be more anxious because I am not an exceptional person. So I have many reasons to fear the surgery. The most important one is the fear of injection and then the surgery itself because you know cutting your body has to come with pain. So I am afraid because it is an unpredictable situation I am facing". (p. 21)

Again Participant 7 reported: *"Yes... you said it by yourself; it is surgery, which means one is going to be operated on, you don't need to be told, and naturally anybody going for surgical operation must have to be afraid of the whole thing. They will cut into your body so it is necessary to be afraid... let me tell you, since about a month ago, when I and my husband came to see the doctor because of what I am feeling in my stomach, the doctor prescribed some drugs for me and told my husband that we should come back after taking the drugs for further examinations. From that time, I sensed, I will undergo surgical operation, because only I can tell what I feel in my body". (p.7)*

Participant 1 also reported: *"I could not sleep for long time in the night, I use to have occasional dreams during my brief sleep with themes about illness, hospital and sometimes I see myself vividly in the surgical room. I continue thinking about*

the surgery as the time approaches, I try to control my thoughts but as I said, it is a reality and I cannot change it. But oh! I still… I am still very nervous about the surgery, honestly. I have tried to do my best even though I am nervous; I must have this operation done because doing it at this early stage is better".

Participant 6 also reported: *"Well, oh my son I can tell you honestly, I fear the surgery itself. I have never had one before. And from the story we hear about surgery it is something that must be feared. Remember that it is a blade that will be used to cut into your body. Even though my own surgery is on my hand, not having to do with some major parts and organs of the body, I still have to be afraid of the whole process. But I would have been more fearful if the surgery is to be performed in say my stomach... but wherever it will be performed, surgery is something to be feared".*

The fear of surgery in the participants of this study is so intense that some participants think of dying as a result of the operation. Some participants received negative information about the hospital where the study was conducted, telling them that many patients die after having surgery in the hospital where the study was conducted. The fear of surgery as a source of pre-operative anxiety has been reported in previous studies. Jawaid et al. (2008)found in their study participants that higher pre-operative anxiety was related to the fear of surgery, with a mean score for surgical anxiety: 57.65±25.1. Another factor responsible for the participants' pre-operative anxiety, which is being reported along with the fear of surgery, is the fear of anaesthesia. In this study, the fear of anaesthesia was expressed by the following participants:

Participant 21 reported that: "*There are so many things associated with the surgery that one has to think about. Imagine the injection*

that makes you unconscious (referring to anaesthesia), that injection they said is very painful, if not administered by an expert; while they are trying to save your life, or relieve the pains of surgery, it can easily lead to the death of the patient. There are many reports of death following these type injections". (p.21)

Participant 13 also reported: *"If there is one aspect of the operation I worry about, it is the anaesthesia. They said when anaesthesia is administered to you, you will become somewhat like a dead person before you finally recover from the effects of the anaesthetic drugs. Then, you regain your consciousness. Some people never recover from the anaesthetics, they die".*

Fear of anaesthesia as a factor causing pre-operative anxiety has been reported in the literature by many researchers. Mavridou et al. (2013) studied patients' anxiety and fear of anaesthesia and found that 81% of their study participants expressed a high degree of fear about anaesthesia with female patients (83.3%) more anxious about anaesthesia than males (75.7%). Patients undergoing anaesthesia for the first time are more anxious than those with previous experience of anaesthesia; they fear disclosing personal problems because of anaesthesia and are afraid of improper post-operative care. In general, Mavridou et al. reported that their patients were anxious about unsuccessful anaesthesia, unqualified anaesthesiologists or anaesthesiologists not being attentive to them intra-operatively. A significant number of patients (64.8%) expressed fear of death associated with anaesthesia in this study (Mavridou et al. 2013).In another study, Mitchell (2012)reported that, out of the 674 participants, 82.4% were highly anxious on the day of their surgery. The main source of their pre-operative anxiety was attributed to fear of anaesthesia, waiting for the surgery, pain, fear of the unknown and the surgery. Mitchell (2012)also reported that patients operated on under general anaesthesia had

statistically significant anxiety than those operated on under local anaesthesia. In contrast to the findings of this study and studies by (Mavridou et al. 2013) and (Mitchell 2012), (Elmore et al. 2014) reported that 59 patients (63% of their study participants) were not afraid of general anaesthesia; only 35 (37%) were found to be anxious of general anaesthesia. However, 50% of the patients unafraid of general anaesthesia have had prior experience of anaesthesia and surgery; while only ten participants (30% of those afraid of anaesthesia) had prior experience of anaesthesia/surgery in their life.

The last category under the theme ‘surgery as a source of pre-operative anxiety’ is the fear of the outcome of surgery. The reports from the participants of this study illustrate that they live with low positive expectations of the impending surgery and therefore are not hopeful of having a good outcome after the surgery. This low expectation of successful surgery brings about high feelings of despair, resulting in heightened pre-operative anxiety and distress in some participants of this study. A similar finding was reported from a study conducted in Nigeria (Akinsulore et al. 2015a) which reported that anxiety related to post-operative outcome and the fear of post-operative complications were the greatest factors responsible for their participants’ pre-operative anxiety. Additionally, (Feuchtinger et al. 2014) reported that, in their study involving waiting patients, apart from the fear of surgical operation and fear of post-operative complications, the participants expressed a reserved fear of the outcome of the operation. In this study, Feuchtinger et al. (2014) further reported that two-thirds of their participants also reported generic unspecified factors as their sources of anxiety.

Although fear of surgery has been reported by some patients, one patient maintains a positive view of the operation, stating that he is happy that the surgery will be performed.

"Well you know as the situation is, I cannot say that I don't have fear about the operation, isn't it. Really whoever is facing operation must be afraid no matter how little the fear is. But for me I am honestly very happy that they are going to operate on me because, the illness stops me from going to school and going to the shop. Whenever I manage to go to the shop, my brother used to send me back home that I shouldn't be appearing in the public because people will be asking what is wrong with me, and that according to him is not good. He prefers that I stay at home. So if I have undergone the surgery, I will get well and continue with my life like any other person, and I can even continue with my education. The operation is the best option for me".

6.14.2 Theme 2: Information about surgery

6.14.2.1 (a) Information from others

The challenge of surgery made patients seek information from a variety of sources. The information received by the study participants is a factor that causes pre-operative anxiety as they receive different versions of information about surgery and some of this information is anxiety provoking. Some patients get information from the hospital staff or directly from their doctors, anaesthetists, surgeons or nurses. Others get their information from relatives and friends who have had surgery before. Thus, from these sources, both positive and negative information about the surgery or the process of performing it were received.

Some participants needed to be told what they will undergo, while others felt such information is not necessary because it may trigger their anxiety. According to some study participants, the negative information they received about anaesthesia and surgery was the basis of their faulty thinking about the surgery and therefore a

source of their pre-operative anxiety. For example, the following quotes from the participants justify their anxiety:

Participant 21 reported that: "*There are so many things associated with the surgery that one has to think about. Imagine the injection that makes you unconscious (referring to anaesthesia), that injection they said is very painful, if not administered by an expert; while they are trying to save your life, or relieve the pains of surgery, it can easily lead to the death of the patient. There are many reports of death following these type injections". (p.21)*

Participant 13 also reported: *"If there is one aspect of the operation I worry about, it is the anaesthesia. They said when anaesthesia is administered to you, you will become somewhat like a dead person before you finally recover from the effects of the anaesthetic drugs. Then, you regain your consciousness. Some people never recover from the anaesthetics, they die".*

Consistent with the findings of this study, (Wakim et al. 2010) reported in their study that the causes of pre-operative anxiety include, among other things, negative information about surgery and anaesthesia, the signs of causal diseases, as well as past experience of anaesthesia and surgical operations. While the information received by the patients affects the extent to which they experience fear and anxiety related to the impending surgery, the characteristics of the patients and their strategy for coping with stressful events such as surgery also matter in such situations.

6.14.2.2 (b) Information from the clinicians, family members and other sources

Although a significant number of the participants of this study have shown a higher desire for information as depicted from their responses to the APAIS-H scores on the information desire sub-

scale, the information given to some of them was a major source of pre-operative anxiety. Information about surgery is very important and helps surgical patients calm down and become less apprehensive. However, when such information is not given on time by the clinicians or the manner in which the information was delivered is not appropriate, the information precipitates feelings of high anxiety in the patients. The following quotes show how some participants become anxious following the information they received from their clinicians.

Participant 7 reported: *"What baffles me most and made more anxious is the sudden information that I will have an operation. I came to the hospital on my own… to see a doctor because of a small swelling I discovered under my private part. The lump is not paining me anyway, it is just itching but the pain is not very severe. So you see, I think I need to be given information, at least to organise some things in the family and also in the place of work. In fact, I need more information in advance. The way I was given the information makes me very anxious because it is as though the lump can lead to my death".*

Participant 1 reported that: "*That information makes me so fearful because the doctor is the person treating you but is being sceptical of the outcome of the treatment; I think that is worth fearing*".

While previous studies have reported the values of pre-operative information, particularly the information given to patients by clinicians at the pre-operative assessment clinics, some of the participants of this study reported being very anxious after receiving information from their clinicians. One possible explanation for this could be that the participants of this study tended to be selective in receiving information from their clinicians. They tended to focus and attend more to that

information about the possible post-operative complications, pain and other likely negative events following the operation rather than focusing on the positive information about the surgery and recovery from the surgery.

Yiend (2010) reported the characteristics of clinically anxious patients in that they tend to focus attention on favourable stimuli and are biased towards attending to threatening stimuli or information. People who have a personality trait for worry and those with anxiety disorders are likely to be biased in attending to threatening stimulus that is capable of inducing fear. Many studies have put forward the idea that the attentional structure of fearful people can be characteristically sensitive to some sorts of information and be biased towards others, particularly information about threatening environmental stimuli (Bar-Haim et al. 2007).However, Losch (2014) reported that there is a distinction between individuals with vulnerability to experiencing general anxiety and the tendency to experience anxiety as a result of specific anxiety provoking stimulus (specific fear).

It is an acceptable practice for patients to be told what is going to happen to them, but some participants of this study reported that a lack of adequate information from their physicians was a source of their pre-operative anxiety. These participants wanted to be told what to expect during the operation, what to experience after the operation and what to do in order to cope well post-operatively. For example:

Participant 3 stated: "*Another thing that worries me is that the doctors don't want to tell you much about the operation. They don't want you to know what you will experience, keeping me in darkness means worrying about the whole process of the operation and that*

will not help me. I think if I know more about the surgery my fear will be reduced, I will not be afraid of it..."

Participant 11 said: *"They kept me here, nobody said anything to me. They only come and measure this and that without telling me why they are doing it. I don't understand this… I need to know what they are doing and why they are doing it, keeping me in darkness is really frightening".*

Sjöstedt et al. (2011) categorised surgical patients into four different categories according to their need for information about surgery: the first category needs information to reduce pre- and post-operative anxiety, the second needs information for a sense of assurance, the third, information regarding the management of post-operative pain and, finally, the fourth category needs information about general knowledge of surgery. Conversely, Keulers et al. (2008) found that surgeons are convinced that their patients are particularly interested in information related to the domains of disease, examination and operation but at the same time surgeons underrate their patients' needs for wide-ranging, adequate pre-operative information.

Participant 21 stated that: *"… anaesthesia I would prefer to be operated without having it been administered to me. I have not had it before, but the information I got about it was horrific so I completely hate it. I don't like it. Apart from this, actually there is nothing I can say I am afraid of about the surgery".*

6.14.3 Theme 3: Hospital as a source of anxiety

6.15 Recommendations for the study;

One major source of hospital anxiety is the news, mass media reports or films about hospital casualties. Such media reports have been found to lead to the development of hospital anxiety. According to (Sweeney 2015), anxiety about hospitals is not completely without origin. The media provides reports of the

occurrences of medical errors which are found everywhere in the world. Even in more developed countries clinicians are found to have mistakenly administered wrong treatments or performed wrong procedures in spite of the advancements in medical practice. Thus, individuals with an already existing fear can simply have hospital anxiety as a result of such negative media reports.

Fear of hospitals is common among most hospital patients, even among those with non-surgical cases. But for patients scheduled for a surgical operation, their experience of a high degree of fear and anxiety related to hospitals is enormous because of the fear that they are going to be operated on. Some of the participants of this study expressed anxiety related to hospitals. It is known that the hospital is a place where people are cured of a variety of illnesses, but it is also known that it is a place where people in a lot of distress are kept. Some patients even die in hospital. No one wants to be in the hospital as a patient. Some of the participants of this study reported that their fear of hospitals started from childhood. For example:

Participant 2 narrated his fear of the hospital in this way: "…*In fact I fear everything, everything about this surgery. Let me tell you, since my childhood I naturally do not want visiting a hospital. I have a very strong fear of the hospital. When I was young, I used to hide my sickness so that I will not be taken to the hospital. But you know parents, they understand me and start asking what am I feeling or what was wrong with me. I don't want hospital. I have fear of hospitals and doctors... Whenever I am crying as a young child, my mum used to tell me 'stop crying or I will call the doctor to come and give you injections'. Whenever I hear such threat, I used to shut up.*

"So my fear is generally the fear of any form of medical treatment. I hate taking medicine. Sometimes even the smell of some drugs makes me very uncomfortable or start vomiting".

Participant 26 expressed her fear of the hospital by stating that based on the information she received: *"This hospital (where the study was conducted) is just interested in operating on patients…the doctors in this hospital always like to be doing operations... Why not think of or give alternative treatments to cure their patients. Since before I become sick, someone told me that this hospital is just about surgery. All they know is operating on people; they don't explore other treatment options…Even though my illness is not a complicated one, I cannot dismiss the possibility of having a problem after the surgery. I am very anxious because of this information I got about what goes on in this hospital".*

Participant 23 reported: *"I am afraid because I am a person that doesn't like to even visit patients in the hospital, and now I am the one brought to the hospital not for consultation but for surgical operation, it is indeed a terrible time in my life. Why is it me, what have I done that God will send me this illness".*

Participant 14 stated: *"…I am scared, very nervous, yes. Because I have never slept in the hospital; I have never stayed in the hospital for more than four or five hours. So I don't know what it is like staying in hospital not to talk about having surgical operation..."*

Anxiety related to hospitals is a phenomenon reported by many patients. Consistent with reports from the participants of this study, Kadens (2015)stated that hospital anxiety, as it is medically called, is caused by factors such as the patients' previous experiences of surgical operation or admission to hospital, or at times simply by information from other people or the media which mostly reports on negative events, instead of positive outcomes. In one review,

(Sweeney 2015)reported that a single traumatic event that occurred in the hospital is sufficient to be a reason for hospital anxiety. The hospital is a real reminder that sends signals that humans have a very short life and each individual dies at a point in time. Information about the death of someone close, receiving diagnosis of a deadly illness of oneself or a relative always happens in the hospital and could be so traumatic for the patients with hospital anxiety. This then becomes a conditioned response occurring over and over each time the patient has anything to do with a hospital.

6.15.1 Recommendations for clinical practice

This study has demonstrated a high prevalence of pre-operative anxiety and higher need for information about surgery among the study participants. Given that medical, nursing and psychological literature is replete with information on physical and psychological effects of pre-operative anxiety on surgical patients, it is recommended that adequate assessment of pre-operative anxiety for all surgical patients is made before they undergo a surgical operation. Assessing and screening surgical patients would provide the clinicians with adequate information on Hausa-speaking patients in need of pre-operative anxiety reduction interventions as well as those in need of more information about their surgery. It is therefore significant for clinicians to investigate further those patients who scored high on pre-operative anxiety and to find out precisely the reasons for their increased anxiety. A better understanding of the fundamental issues causing patients' pre-operative anxiety may give clinicians the evidence needed to develop more effective therapeutic interventions to alleviate the high pre-operative anxiety in these patients before they undergo surgery.

Some of the major benefits of assessment of patients' pre-operative anxiety are that assessment gives the clinicians the bases to make

appropriate diagnoses, identify treatment-related patient issues and address those using available resources. Establishing the level of pre-operative anxiety will help the clinicians to explain the type of intervention they need to the patients. Assessment also helps the clinicians not to miss patients who fake and present with low or no anxiety but in the real sense they are more anxious than they pretend and therefore in need of more clinical intervention. The insights from assessments will help the clinicians to form collaborative treatment plans with patients and other clinical partners to address the patients' needs. There are many benefits of assessing the degree of pre-operative anxiety for the patient. It empowers them to communicate with the clinicians and make them feel they are an integral part of the process of their treatment rather than seeing themselves as only the 'subject' of assessment. It is therefore recommended that clinicians dealing with Hausa-speaking surgical patients should use APAIS-H as a tool that will provide data on the degree of the patients' anxiety, discussing which will promote rapport-building between clinicians and patients. This will facilitate their understanding and appreciation of pre-operative anxiety reduction interventions. More so, assessing and classifying patients that are more anxious from non-anxious ones would give the clinicians, as well as the hospital authorities, the opportunity to adequately and efficiently use their available resources on only those patients who need them. Overall, given the evidence indicating the connection between pre-operative anxiety and post-operative outcome, it is recommended to include this approach in the pre-operative consultation.

6.15.2 Recommendations for research

It is recommended that more research should be conducted to find out the factors responsible for the higher rate for pre-operative anxiety recorded in the participants of this study. In this study, patients were requested to score themselves on the APAIS-H

based on how they felt at the time of filling out the instrument. It is recommended that a further study should be carried out to collect data on those patients who scored moderate to high anxiety to discover the factors that differentiate them from those patients who scored low on the APAIS-H scale. The pre-operative anxiety manifested by these patients may be related to different features of the surgical operation or to their individual circumstances. Although interviews were conducted with the participants of this study which revealed the factors that were assumed to be the cause of their pre-operative anxiety, more in-depth interviews are required to gain more insight into these factors. Such information could be used in designing and developing interventions that will help in alleviating pre-operative, intra-operative and post-operative anxiety in such patients. There is also a need to conduct further study that may use another standardised and validated assessment tool on elective surgical patients in order to compare the anxiety scores obtained with what has been obtained using the APAIS-H. Further research is also needed to find out whether the anxious patients understand the effects their pre-operative anxiety has on their health and wellbeing as they prepare to undergo surgery. Such understanding will help the patients to appreciate any pre-operative anxiety reduction interventions that may be administered to them.

There is a need to undertake further study to investigate the prevalence of pre-operative anxiety using patients with homogeneous surgical cases. In this study, the participants used were surgical patients with different surgical cases, some of which may be more anxiety provoking than others. Thus, to better understand how prevalent pre-operative anxiety is in patients undergoing elective surgery, the use of surgical patients with homogeneous surgical illnesses will provide a more reliable and valid data.

6.16 **Limitations of the study**

The present study is limited in some ways. The first limitation is related to the study design which includes a number of problems. These include, among other things, the sample size and the type of surgical operation, as well as the timing of the questionnaire administration; the second limitation is about how data was collected. Participants completed the instrument just before they underwent surgery so there was no time available for the participants to reflect on the questions before they chose their appropriate response. Data collection was carried out by the researcher alone, who is not a member of staff at the hospital and not based in the town where the hospital is situated. This could have affected the recruitment of the participants as many potential participants may not have been included either because they were seen by their clinicians when the researcher was absent or they might have finished their consultation when the researcher was with another patient.

The issues about the study design as a limiting factor will be discussed here. This study recruited only 30 participants, therefore a larger sample size of Hausa-speaking surgical patients needs to be recruited for future study to provide more accurate data in this important field of study. Although the 30participants used in the current study are sufficient to produce significant results, engaging a large number of participants would increase the quality of the study and confidence in making a generalisation of the findings.

This study is a single centre study. There is therefore a need to carry out a similar or the same study in two or more centres using the same kind of patients, the same study instrument, procedure for data collection and the same method of statistical analysis. This will provide a good grounding for making a generalisation of the findings of the study.

The study also used patients with different types of elective surgery as participants. The difference in types of surgical cases among the study participants may be a factor for the high levels of pre-operative anxiety recorded. Some patients' surgical cases are not complicated while others are more complicated. This could be a factor responsible for the high pre-operative anxiety seen in the study participants. There is therefore a need for a similar study to be conducted using participants with a homogeneous type of elective surgical case so that the anxiety score recorded in these patients may not be attributable to differences in surgical procedures but the surgical case at hand.

A major limitation of this research is that the APAIS-H was administered to the participants just a few hours before they were taken to the operating room. It is likely that pre-operative anxiety levels could rise dramatically as the time of the evaluation is characterised as high-anxiety-provoking owing to the fact that the uncertainty about the surgery could trigger the perception of threat and, consequently, elevate the anxiety level. Previous studies have reported that the waiting time before the surgical intervention has been described as a significant factor that affects pre-operative anxiety (Perks et al. 2009; Aalouane et al. 2011).

7 PATIENTS' PREFERENCE OF NON-PHARMACEUTICAL PRE-OPERATIVE ANXIETY REDUCTION INTERVENTION FOR REDUCING ANXIETY BEFORE ELECTIVE SURGERY

7.1 Introduction

This chapter aims to answer the research question: What non-pharmaceutical intervention for reducing pre-operative anxiety would elective surgical patients prefer to be used in reducing their anxiety prior to elective surgery?

Patients' preference of intervention refers to what the patients would want their treatment to be if they were left with the opportunity to select or choose from a variety of available treatment options (Friedrichs et al. 2016). This definition is simply based on the fact that patients' needs and values need to be considered so as to meet their expectations. Preference of intervention emphasises what the patient actually wants to happen to them if given their preferred treatment intervention. Treatment preference is about precise indications of the sort of medication or intervention that will be dispensed or administered to the patients. Preference of intervention therefore involves such things as choosing a behavioural instead of supportive intervention or preferring psychotherapy in place of a pharmaceutical intervention approach etc. For patients to prefer a particular treatment or intervention, they have to go through a complex process and make appraisal of the benefits, problems and inconveniences while considering other alternative interventions. The strength of patients' preference for a treatment is the extent of the patients' willingness to agree or disagree with the particular treatment. Preference is therefore a subjective personal assessment of how a patient thinks through the likely effects of a treatment on their health and length of life. Choices related to individual treatments are very delicate as there is no particular treatment that is best for all patients. Instead, the best

choice is subject to the individual patient's beliefs, attitudes and priorities. Understanding patients' preferences for interventions can greatly inform decisions in clinical practice as well as in formulation of health policy. The major reason for preference assessment is to assist in making a good patient-centred clinical decision. The aim is to fit choices of treatments to a group of patients or to individual patients. For these reasons, patients need to be involved in decisions about their treatments.

The benefits of involving the patient in treatment decision-making are being gradually recognised by healthcare professionals and investigators involved in investigating treatment effectiveness or treatment outcome (Collins et al. 2007). It has been advocated that involving patients in treatment decisions can improve satisfaction with treatment outcomes, enable cooperative clinical relations between health professionals and patients and contribute in the adherence to interventions as patients feel that the intervention was agreed upon mutually by themselves and the clinicians (Mitchell et al. 2012). It is obvious that, for any patient to be appropriately treated for whatever condition, a number of decisions about how they are to be cared for and managed throughout the period of intervention have to be made before embarking on the actual treatment.

However, in patients presenting with pre-operative anxiety, it is currently unknown how clinicians and patients deliberate and exchange relevant information about the problem and it is also not known whether clinicians consider (or are ready to consider) their patients' preferences before or during pre-operative anxiety reduction intervention sessions. Given the fact that pre-operative anxiety is not an illness per se for which the surgery is planned, but a problem that has the capacity to affect the entire surgical process thereby reducing the patients' overall satisfaction with the surgery,

discussion about how best to treat such anxiety between the clinicians and surgical patients is very important.

At present, no study has been conducted to find information on surgical patients' preferences of non-pharmaceutical interventions for reducing their pre-operative anxiety before undergoing elective surgical operation. Phase 3 of this study therefore was designed to investigate Hausa speaking surgical patients' preferences of non-pharmaceutical interventions for reducing their pre-operative anxiety before undergoing elective surgery.

7.2 **Literature review**

Because there are varieties of treatment approaches for almost all illnesses, it is widely advocated that patients be given the opportunity to decide on and select their preferred treatment or intervention for their health problems. People are naturally different and these differences reflect in their personality, the way they process information, how they react and cope with illness, comorbidities and other psychological and social factors related to their health. Therefore, treatment that is effective for one patient might not work or be effective for another. Montori et al. (2013) reported that an effective and efficient chemotherapeutic treatment could be a best medication of choice for one cancer patient, whereas a different patient *can* take the same treatment but *will not*, and yet another patient *could not* take the treatment even if needed. Therefore, attention has to be paid to the biopsychosocial factors because patients' preferences for treatment require not only the clinicians' expertise but also practical wisdom (Montori et al. 2013).

The previous tradition that doctors, nurses or other clinicians know everything and therefore make decisions on behalf of their patients without involving them is today seen as an outmoded style of medical care (Tariman et al. 2012). Such a paternalistic approach has no place in the modern-day healthcare delivery system. In

modern healthcare practice, how patients view their illness and how they want it to be treated are important variables clinicians must consider when making plans for the treatment of their patients. Emphasis is given to effective collaboration between clinicians, doctors and their patients. This is highly advocated, such that the two parties can work together to discuss the clinical and psychosocial aspects of the illness and the outcome of the treatment. Clearly, the provision of patient care that respectfully and responsively considers the individual patient's preferences, requirements, values and beliefs is at the centre of the widely advocated principles of evidence-based medicine (Siminoff 2013). When patients participate in their treatment decision making and their preferences of interventions are integrated into their healthcare plans, they tend to feel more involved and empowered, which in effect is a major contributor for improved outcome of the treatment. Vahdat et al. (2014) reported that making patients more actively engaged in their healthcare decisions improves their knowledge, lowers their level of anxiety and increases their satisfaction with treatment. Accordingly, (Coulter et al. 2008) reported that a common reason for patients' dissatisfaction with healthcare is for them to feel not fully informed about and not fully involved in the decisions related to their treatment. Therefore, shared decision making, in which patients are involved and considered as active partners in making treatment decisions, is a recommended option to appropriately tackle this problem. Clinicians are encouraged to work together with their patients to ensure that they identify suitable therapeutic plans and select an appropriate one in line with the patients' preferences. However, this can only be achieved if the clinicians give patients the opportunity to be involved in the treatment decision making, provide them with alternative interventions and give them the opportunity to make a choice. This, according to (Vahdat et al. 2014), is said to be an important step in

ensuring a quality service characteristic of evidence-based medicine.

Since adoption of any decision associated with health and treatment services is made to affect patients' lives, the importance of patient participation in matters affecting their health cannot be overemphasised. However, to plan and provide such patient-oriented health intervention services based on the patients' preferences, needs and values is not an easy task, but at the same time an essential element for enhancing the entire healthcare system and consequently increasing the patients' approval and confidence in health services. This is essential to the provision of more appropriate and cost-effective services, and ultimately enhanced health outcomes, quality of life and satisfaction of patients. While not all patients want to play an active role in choosing a treatment – because of age-related and cultural differences – most want clinicians to inform them and take their preferences into account.

7.3 **Barriers in obtaining patient preference of treatment**

Patients' preference of treatment is not always easily attainable in a typical clinical encounter. Physicians and other clinicians have been reported as not possessing the necessary skills level required when asking patients for their preferences or even simply asking what the patients want as their treatment and why Ibrahim (2015). Shared decision making as an approach to healthcare that has been extensively encouraged and accepted by health organisations relies basically on establishing patient preferences and incorporating them into the treatment decisions. However, certain factors which are both from the patients and clinicians' perspectives militate against obtaining patients preference of intervention. While physicians and other clinicians have been reported as not possessing the necessary skills level required when asking

patients for their preferences or even simply asking what the patients want as their treatment and why Ibrahim (2015), patient related factors such as attitude age, education, readiness to ask clinicians questions about the treatments and understanding medical jargons have been reported in the literature as impediments to preference elicitation (Briel et al. 2007; Silva 2012) Briel et al. (2007) and Silva (2012). The main barrier to eliciting patients' preference of interventions is related to gap in communication between clinicians and their patients. Adequate communication skill is necessary for clinicians to be able to interact and communicate with their patients in order to provide complete and balanced information on the advantages and disadvantages of all available pre-operative anxiety reduction interventions.

Numerous studies have shown that patient-related variables, such as their values and attitudes, are major obstacles to achieving patient-centred and preference-based interventions (Coulter et al. 2008; Coulter 2010; Coulter 2011). Patients' demographic characteristics– such as age, education and gender– and their attitudes, beliefs, readiness to share information and experiences about illness, and past treatment history may affect the degree to which the patients would want to be involved in treatment decisions or to state which treatment option they would prefer (Silva 2012). Research evidence has shown that elderly patients like the traditional paternalistic approach to healthcare in which the clinician leads every aspect of the treatment decision rather than the shared approach which considers the views of the patients to be more important (Rotar-Pavlič et al. 2008).

In one study, (Briel et al. 2007) interviewed 636 ambulatory patients with acute respiratory tract infections. The researchers questioned the participants about their agreement or otherwise with two statements that are the opposite of shared decision making.

Proportional odds regression was used to find out if the participants agreed with the statements related to patient characteristics, satisfaction and enablement. The result of the study reveals that 66% of the participants preferred to leave the decision about their treatment to their physician. These patients were more likely to be satisfied with the consultation and scored higher on enablement. The group of patients whose responses supported a preference for shared treatment decision were younger, more educated and in more distress. The researchers concluded that patients consulting health practitioners for acute respiratory tract infections have to be invited to participate in their treatment decision although many of such patients may decide not to participate.

Davis et al. (2008) carried out an empirical study to find out how ready patients are to ask clinicians questions on issues about the quality of their treatment. A sample of 80 patients above the age of 18, who had undergone different surgical operations, was recruited from a teaching hospital in London to participate in the study. The aim of the study was to assess the surgical patients' readiness to ask clinicians about treatment, find out differences between patients' willingness to ask factual versus challenging issues about the quality and safety of their care. Other issues of interest were what patient characteristics affect willingness to ask questions about safety and the influence of doctors' instructions on patients' willingness to ask questions about safety of treatment options. The researchers used a 'Patient Willingness to Ask Safety Questions Survey' (PWASQS). PWASQS is an instrument consisting of 28 questions developed to assess the patients' willingness to ask clinicians questions about healthcare. The patients were informed that the questionnaire was designed to find out how ready they were as patients to ask about the quality and safety of their healthcare. Patients were requested to respond to each question on a 4-point Likert Scale with the response options: 'definitely not',

‘probably not’, ‘probably yes’ or ‘definitely yes’ to indicate their willingness to ask clinicians each question in the questionnaire. The data were analysed using the statistical package for the social sciences (SPSS). The findings show that patients’ willingness to ask clinicians depends on the content of the question which is to be asked and whether the patient received instruction to ask the question. Most of the patients were willing to ask clinicians factual questions about the delivery of their healthcare; however, fewer patients were willing to ask their clinicians challenging questions. The findings also revealed that male surgical patients, less educated and those without employment are less willing to challenge clinicians about their care than to ask them factual questions. The limitation of the study is related to the use of post-operative patients rather than pre-operative ones. Post-operative patients had already undergone their surgical operation and therefore did not have the burden of preference of decision making about treatment. Thus, the way they answered the questions might be different to the way pre-operative patients would; owing to the tension and anxiety pre-operative patients are going through.

Cullati et al. (2011) conducted a study to examine the factors related to the need for independence in treatment decision making among the general population. Two thousand three hundred and thirty-eight (2,338) research participants were recruited from Switzerland. The participants were asked to respond to questions on a scale designed to measure their need for independence in treatment decisions. The scale ranged between 0–100. Decision-making preferences (DMP) of the autonomy preference index scale were used to evaluate respondents’ need for independence in healthcare decisions. The original scale consisted of two groups of items: one for measuring general attitude (six items) and the other (nine items) for measuring three clinical conditions. The study results show that, on average, the participants preferred joint or

active participation in treatment decisions; however, there is a considerable variation in attitudes of the respondents. The findings also reveal that, being female, young age, higher educational attainment, living alone and being of excellent global health were factors linked with a greater need for autonomy in medical decisions. The use of the six-item version of the scale instead of the full version can lead to questions of bias as the six-item version does not capture all the clinical situations of the patients. This could affect the validity of the findings of the study.

Moreau et al. (2012) conducted a qualitative study to establish patients' perceptions of treatment decision making and to find interactions among decision-making models. Four focus group interviews with elderly persons, people using health support groups, students and rural populations were conducted. Respondents were requested to state their views on decision making in three clinical case scenarios related to hypertension, breast cancer and prostate cancer presented by the researchers. The scenarios were designed to increase participation of male and female patients in treatment decisions. The participants were requested to read and understand the clinical case scenarios so as to respond to the researchers' questions immediately. The question they were asked to respond to was: "How do you perceive that decisions were made in these three situations?" The findings, following transcription and analysis of the interview recordings, show that most of the respondents – young or middle-aged in the three focus groups – preferred the model in which the clinicians and the patients interact and come up with a treatment option based on the patients' choices. They described decision making as an "interactive process between a physician who considers the patient as a person, and a patient who gives his/her consent freely". They also perceived this process as the interactive transfer of knowledge between the physician, who is medically competent, and the patient, who has lay expertise

(Moreau et al. 2012). A major limitation of the study was the use of participants that are not patients suffering from any of the conditions used as case scenarios. The use of patients who have the clinical condition described in the case scenarios would result in generating information that is typical of the sufferers of the health conditions described.

In another similar study, (Adams et al. 2012) examined the different types of interactions amongst doctors and people with chronic illnesses to see how these relationships influence decisions taken from a shared decision-making perspective. The researchers carried out a survey of 999 patients with chronic medical conditions. The interest was in finding out how different relationships between patients and healthcare professionals may influence treatment decision making. Data was collected at two stages: stage one consisted of separate interviews with patients and with doctors and then a focus group discussion. The second stage involved the administration of a questionnaire developed to find out responses from the themes that emanated from the interviews. The study found that patients between the ages of 18 and 34 years were unhappy with the relationship with clinicians. These patients were not likely to share the decisions about their treatment with the clinicians. On the other hand, elderly patients – 65 years or older – were found to be happier with the traditional clinician-dominated relationship. The study has some limitations. First, the researchers relied on the participants' self-reports to establish their relationship with doctors and their patients. Although the approach has some advantages, it allows for biased evaluation of the doctor/patient relationship as participants may present either favourable or unfavourable views, depending on how they wish to present such a relationship. Second, the study only uses patients with chronic medical conditions who have already established a relationship with

their physicians. This can also increase the chances of biased reporting.

Ekdahl et al. (2011) conducted a questionnaire and a telephone survey of more than 2,300 people in Switzerland. The participants consisted of elderly patients aged 75 years and above. The aim of the study was to assess every participant's preferred and actual role in treatment decision making throughout the period of their past admission to hospital. The researchers also sought additional information about obstacles to their participation in treatment decisions and whether their preferred information and interventions were given to them. The study found that, on average, patients preferred to be actively involved in treatment decisions, however, there are some variations in attitudes among the study participants. These patients reported having good health and had had prior experience in treatment decision making, although 33% of the patients stated that they had some of the barriers to treatment decisions they were asked to respond to. These include the severity of their illness, clinicians' different treatment approaches, trouble understanding the medical information and struggle to understand doctors who did not speak their own local language. The researchers concluded that clinicians do not take into account their patient preferences about the nature and degree of information or their desire for participation in treatment decision making. This, according to the researchers, can be a problem and therefore should be taken seriously by clinicians when treating hospitalised elderly patients. The limitation of the study is related to the restriction of data collection only to elderly patients. This will make generalisation of the findings a problem.

There are no consistent findings about the impact of gender on treatment decision and preferences. Swanson et al. (2007) designed a study to find out if treatment decision and/or receiving

mental health treatment were related to patient satisfaction for depressed patients. The study also sought to establish whether gender has an effect on these relationships. The study participants recruited were 1,481 patients who were diagnosed with a major depressive disorder but only 1,317 patients participated and answered the initial questionnaire and the subsequent one after six months. The researchers performed cross-sectional analysis using multiple logistic regressions. The findings indicated that shared treatment decision making and receiving mental healthcare were both positively related with greater patient satisfaction among patients with a major depressive disorder. Gender, according to (Swanson et al. 2007), does not appear to be a moderator of mental healthcare or preferred treatment decision or patient satisfaction. Female patients had no greater opportunities than male patients for valuing treatment decisions when evaluating their satisfaction with care. A major limitation of the study is the use of a sample drawn only from patients with a major depressive disorder. Generalising the result of the study to patients with other types of depression, such as bipolar depression and manic depressive disorder will be difficult. The study would have been more inclusive if it had involved all sub-types of depressive patients as participants.

Arnetz and Arnetz (2009) designed a research to see if there are gender differences in perceptions of patients with myocardial infarction in terms of their participation in treatment decisions during hospitalisation. A questionnaire was distributed to patients with myocardial infarction below the age of 75. Patient scores of participation were analysed for age-stratified gender differences. The findings of the investigation reveal that female patients below 70 years of age significantly valued shared decision making than younger male patients below 70 years of age. More than one third of the study participants liked to be more actively involved in decisions about their treatment during hospitalisation and planning

of their discharge. Women were more significantly dissatisfied than men with their level of involvement during hospitalisation.

In a recent UK-based study, (Liddon et al. 2017) surveyed 347 participants (115 male and 232 female) selected through important websites and social media platforms. The researchers described different therapies to participants and requested them to indicate how much they preferred each. The researchers also evaluated the participants' coping styles and help-seeking behaviour. Multiple linear regressions were used to analyse the participants' responses. The findings show that male participants preferred support groups more than their female counterparts. Most of the participants did not show preference for the sex of their therapist, however, of those participants who did, males were only a little more likely to favour a female therapist while females were far more likely to prefer a female therapist.

Similarly, (Williams et al. 2016) conducted a cross-sectional survey of patients receiving psychological therapy from 184 NHS facilities in England and Wales. A total of 14,587 patients responded to the study. The respondents were questioned about their treatment preferences and the degree to which these preferences were met by the hospitals. The respondents were also requested to state the degree to which the therapy they received helped them cope with their psychological problems. The study result indicated that 86% of patients expressed a preference for at least one aspect of their therapy; 31.5% of patients stated a preference for at least one treatment and felt that they were not offered sufficient opportunity for choice. Preference for time of day for their therapy sessions was expressed by 72.6% of the patients. These patients were least likely to prefer therapy in a language different from English or receive therapy through an interpreter. A total of 4,252 patients expressed preference for the gender of their therapist. Out of this total, 2,483

(58.4%) expressed that they were not given the opportunity for choice. Patients who were not given the opportunity for choice did not agree that the therapy they received helped them to resolve their difficulties. Patients who reported that their preferences were considered in treatment decisions reported that the therapy had helped them with their problems. The weakness of the study is based on the researchers' reliance on only quantitative data obtained from participants via self-report. Collection of data through interviews or other qualitative approach with both therapists and the participants alike would yield more information that would enrich the findings of the study.

McHugh et al. (2013) conducted a meta-analytic review to assess the proportion of patients preferring psychological intervention instead of pharmacological intervention for psychiatric illnesses. The databases PubMed, PsycINFO and the Cochrane Collaboration Library were searched. Only studies written in the English language and those designed to assess patient preferences for the treatment of mental illnesses were selected. The analysis was limited to studies of conditions such as depressive disorders, anxiety disorders and some general mental health problem research for which the authors investigated preference for intervention. The results of the analysis found that there are three-fold patient preferences for psychological intervention relative to pharmacological interventions. The major weakness of the study is related to the multiplicity of psychological interventions and that the studies included in the review did not just focused on one psychological disorder. The study would have been more relevant if it had focused on one mental illness to find the patients' preferred intervention.

Houle et al. (2013) designed a study to examine the relationship between patients' treatment preferences, characteristics and illness

representations of depression. Eighty-eight newly diagnosed depressed patients were used as study participants. The participants' acceptability and preferences of either psychotherapy or antidepressants were assessed. The researchers adapted a generic instrument – Treatment Acceptability and Preferences Measure – to evaluate the participants' acceptability of either psychotherapy or antidepressant treatments. All participants were given comprehensive information on psychotherapy and antidepressant treatment in a separate section of the scale which includes name of the treatment, its advantages and disadvantages. Acceptability of treatment was evaluated on the basis of the characteristics of the treatment including the appropriateness of the treatment, effectiveness, suitability to the individual patient, simplicity of adherence and its convenience for the patient. Scores were added for each treatment option by taking the average scores on all the questions. Overall scores could differ from 1 to 5; the higher the scores the higher the patients' acceptability of the treatment. Houle et al. (2013) found that the research participants with newly diagnosed depression preferred psychotherapy as a mode of treatment for depression, rather than the use of antidepressants, even though psychotherapy is considered more challenging than antidepressants. The study also found that patients who prefer psychotherapy are at a disadvantage compared to patients with preference for antidepressants. Only 50% of participants with preference for psychotherapy received it as opposed to 96% of those who preferred antidepressant medication. There is a gender difference in the patients' preference for treatment in this study; three out of every four female patients preferred psychotherapy to antidepressants. Male patients are more equally divided between the two treatment modalities. The study has some limitations. First, the use of a cross-sectional design method will hinder the establishment of causal relation. Second,

there are more participants with educational qualifications up to degree level than those with other qualifications. This could be the reason why participants' preference correlated positively with this educational qualification. Third, even though the participants voluntarily agreed and consented to participate in the study, giving each participant $20 as a reward for their participation is likely to affect their responses.

Swift and Callahan (2009) conducted a meta-analytic review to summarise research reports from more than 2,300 participants across 26 studies carried out to compare the differences in outcome of treatment between patients matched to a preferred treatment option and those not matched to their preferred treatment. The findings of the meta-analysis indicate a low significant effect supporting patients who received their preferred treatment. Effect size shows that patients matched to their preferred treatment have a 58% likelihood of showing greater improvement. The analysis further revealed a low significant effect for treatment outcome, suggesting a benefit for those patients who received their preferred treatment as opposed to those with non-matched treatment. More so, patients matched to their preferred treatment were significantly less likely to discontinue their treatment compared with those patients who did not receive their preferred treatment. There are some limitations related to this meta-analysis. First, and foremost, the articles selected and included in the study differed in terms of their study design and quality. This may raise questions about the internal validity of some of the included research studies. In addition, besides the small number of studies included in the meta-analytic review, the inclusion of only studies published in the English language reduces the comprehensiveness of the analysis, thereby making the findings weak to a certain extent.

In another similar meta-analysis, (Swift et al. 2011) evaluated the results of 35 research studies that investigated the effects of adult patients' treatment preference effect. The researchers were interested in finding out whether patients who were matched to their preferred treatment conditions were not likely to prematurely drop out of the treatment and whether preferred treatment can lead to better improvements in the treatment outcomes. PsycINFO was searched for articles on preference of psychological treatment published between the period 1967 and September 2009. Hand searches of other journals were also made to find other relevant studies. The search strategies also comprised citations obtained from the references of relevant articles. After screening articles for inclusion and exclusion criteria set by the researchers, a total of 38 articles were eligible and selected for inclusion in the meta-analysis. The findings of the meta-analysis revealed that 33 out of the 35 studies reported an outcome comparison between clients who were given their preferred therapy and those who were not. Cohen's d was computed for all the studies and the effect size found was d5.31, showing a minor but significant outcome effect for the clients whose preferred therapy was given to them. The study also revealed that there was an average outcome effect size for investigations that compared clients' preferences for psychotherapy versus pharmacotherapy d5.36, and for studies that compared clients' preference for one type of psychotherapy versus another psychotherapy d5.21. This difference indicated that client preferences for psychotherapy versus pharmacotherapy are likely to have a greater effect on treatment outcome than clients' preferences between two types of psychotherapies. With regards to preference dropout effect, the studies reviewed differed in terms of their level of analysis. The studies that considered dropout as not finishing a complete treatment protocol found an average preference effect size of 5.73. On the other hand, studies that

evaluated dropout by therapist rating revealed average preference effect size of 38; while the studies that defined dropout on the basis of attended less than a set number of therapy sessions found an average preference effect size of 5.34. The estimates of effect size from the three groups analysed revealed that when dropout was considered as completion of a treatment protocol, smaller differences were found than between clients who received their preferred therapy and those who received a non-preferred therapy. There are some limitations with the meta-analysis. The number of studies examining patients' preference of therapists is small (only 3 out of 35) and would cast some doubts on whether the results of the study are generalisable.

While some of the barriers to eliciting preference of intervention are patient related, the experience, attitude and empathic nature of the clinician can significantly affect the degree to which they engage patients and elicit their preference of intervention. Evidence from researches have shown that patients who have been supported by their clinicians, doctors or nurses appear to be more involved and activated and also have greater satisfaction with clinical outcome. These findings are clear indications of the role clinicians' or doctors' characteristics play in the therapeutic relationship with their patients. According to (Giveon et al. 2009), healthcare professionals need to believe that the benefits of sharing decisions with their patients is greater than any perceived disadvantages of clinging rigidly to the old traditional practice in which the doctor dominates all the encounter. The clinicians' own beliefs that they ought to have the leading role in deciding on the treatment plan for their patients can have important influence on patient-clinician relations while making treatment decisions, consequently affecting the outcome of the treatment. Such personal beliefs of the clinicians are rooted in the paternalistic model of health decision making, which places more emphasis on physicians leaving the patient with only

an insignificant role when participating in treatment decisions (Tariman et al. 2012).

In a study titled Oncologists' Views of Informed Consent and Shared Decision Making in Paediatric Radiation, (Olson et al. 2012) surveyed 59 paediatric radiation and medical oncologists or fellows from the USA, Canada, Europe, Australia and Asia. The authors found that 71% of the professionals believe that before administering treatment to patients, it is important to let the patients and their families know any risk of severe side effects such as loss of cognitive functioning. Through discussions, the patients and their families are allowed to make informed decisions and choose their preferred treatment option. However, there was a difference in opinion among the doctors interviewed as to whether less severe effects of the treatment should be discussed with parents. This study also reveals mixed views concerning the involvement of parents in making treatment decisions which, according to them, is inappropriate. The limitation of the study is about the small number of participants in each of the studied countries and therefore their views could not be representative of the clinicians in the countries they were selected from. This will make generalisation of the results a problem.

Blundell et al. (2011) conducted a study to explore the attitudes of general practitioners (GPs) in England towards guidelines for elective surgical referral, and the use of guidelines to understand the GPs' attitudes towards shared decision making about referral decision. The researchers distributed questionnaires to a sample of 310 general practitioners drawn from lists of ten English health districts (primary care trusts [PCTs]). The general practitioners were requested to respond to the survey online, via telephone, fax or post. A total response rate of only 41.6% was recorded from the participants despite the researchers making several phone calls to

non-responders. Descriptive statistics and backwards-stepwise logistic regression was used as a method of analysing the data. The study result indicated that the majority of the participating GPs showed support for referral guidelines, except for 18% who reported never using them. Only less than 3% reported that they use the guidelines for most or all referral decisions. The ratio of using guidelines reduced with increasing age. More than 50% of GPs required access to electronic guidelines with expert evidence and information and advice. Nearly all general practitioners (>89%) agreed and opted for sharing referral decisions with their patients. The study found that female GPs were more likely to agree with shared decision making than their male counterparts as were those GPs employed in larger compared to small practices. However, some studies have reported that certain traits of clinicians may have influence on shared decision making. A study of GPs in the United Kingdom reported that female general practitioners and those serving in bigger hospitals were more likely to believe it was significant to share decisions about referrals for surgery with their patients.

Kunneman et al. (2014) conducted a study to evaluate 95 endometrial cancer (EC) patients' and 77 clinicians' treatment preferences of vaginal brachytherapy (VB) and watchful waiting policy (WWP), and to assess their preferred and perceived involvement in making treatment decisions. Five trained interviewers conducted face-to-face interviews with each patient to find out what they would not prefer from VB. A self-report questionnaire was used to measure patients' demographic characteristics, medical history and their preferred and perceived participation in treatment decision making. Clinicians were requested, on the other hand, to answer a web-based instrument in which their treatment preferences, sociodemographic characteristics and details of their work and their attitudes about

treatment decision making were assessed. Descriptive statistics were used to present participants' least preferred benefit from vaginal brachytherapy. Scores were not to be normally distributed for participants' preferred benefits. A Chi-square test was used to compare patients' and clinicians' decisional role preferences and perceived involvement in treatment decision. The result of the study showed a considerable disparity between, as well as within, patients and clinicians in terms of their minimally preferred benefit from VB compared to WWP. Patients' preference was higher for VB at a lesser benefit than the clinicians'. Additionally, patients who had X-ray and radiation oncologists preferred VB at a lesser benefit than non-X-ray patients and gynaecologists. A limitation of the study is related to the method of assessing the desired benefit of the treatment in the two groups of participants. While the researchers interviewed and administered questionnaires to the patients, the clinicians were asked to respond to a web-based questionnaire. More so, the patients used in the study were those who had completed their treatment for endometrial cancer but were requested to imagine a scenario in which they were currently undergoing VB. The study would have been more relevant if the same assessment method had been used on both participants and the patients recruited were those currently suffering the disease.

Patients with some types of illnesses might like to be more involved in treatment decision making than others. In a study conducted in Germany, (Rockenbauch and Schildmann 2011) found that patients making choices about solid cancer lumps were more likely to be involved in decision making about their treatments than patients with haematological cancer.

Dillard et al. (2010) carried out a cross-sectional telephone survey to examine the influences of perceived risk of cancer and behaviours of patients in the process of treatment decision making

for three cancer screening tests. The investigators verified the relationship between perceived risk and two categories of patient characteristics (information-seeking behaviours and treatment decision making and outcome). One thousand seven hundred and twenty-nine adults (1,729), 40 years and above, who had made a cancer screening decision in the past two years, were used in the study. Participants were asked to complete measures of perceived risk, information seeking and shared decision-making tendencies. Participants were requested to report information about nine common forms of treatment choices they might have taken within the past two years. The choices symbolised treatment interventions involving some sort of uncertainty around risk and benefit trade-offs. Three out of the nine decisions were related to types of treatments (hypertension, hypercholesterolemia and depression), the next three were related to types of screening tests for cancer (breast, colorectal and prostate), and the last three were related to types of elective surgeries (hip/knee replacement, cataract removal and lower back pain). Participants' responses were entered into SPSS for analysis. The findings of the study found that, as patients perceived a higher risk for developing cancer, they became more likely to search for information about screening, either on the internet or when they met their physicians (e.g. 35% of participants who perceived a greater risk of developing cancer searched the internet as opposed to 18% for participants who perceived a low risk of developing cancer). As perceived risk for developing cancer increased, patients were more susceptible to turn to more than one clinician. The study found gender difference in decision-making preferences in that men with high perceived risks were more likely to report that they preferred more participation in treatment decision than women at high risk of developing cancer (35% versus 9%). The study has a limitation –it collected information about treatment

decisions made in the past two years which is subject to recall bias owing to problems related to patients' memory.

Müller-Engelmann et al. (2011) conducted a qualitative interview with patients, GPs, health administrators and research professionals to establish the roles played by social norms in the relevance of treatment decision making in different clinical situations. The three groups of participants were selected to represent the viewpoints of stakeholders in the process of treatment preference decision making. Patients were expected to place more emphasis on issues associated with quality of life and patients' experiences. Physicians, on the other hand, were supposed to focus more on treatment efficacy and medical situations. Patients of at least 18 years of age and able to participate in the study without any risk, were recruited from the haematology unit of primary healthcare practices of a university teaching hospital in Germany. General practitioners were enrolled from the department of family practice. Two weeks prior to their face-to-face interview, GPs were requested to write down any specific, commonly occurring situations in which they may include, or may not include, their patient in the process of making a treatment decision. In stage one of the interview, patients were firstly requested to talk about their previous experiences regarding treatment decision making. Thereafter, they were asked to assume scenarios where they would, or would not, like to partake in the process of treatment decision. On the other hand, physicians were asked about the situations they had been asked to document before the interview. They were later asked how they largely determined the extent and nature of patient participation in treatment decision. Healthcare administrators and research professionals were questioned about imaginary scenarios where a doctor should, or should not; include a patient in treatment decisions first. In the second stage of the interview, every participant was asked for their view about the relevance of

numerous situational factors assumed to affect the appropriateness of shared treatment decision making. The interview at this stage was structured based on three themes: features of the illness, features of treatment options and characteristics of the patient. The interview results were transcribed verbatim and the findings reveal that side effects and prolonged effects of treatment on a patient's life are important factors in treatment decision and patients' choice of intervention. Additionally, the study results regarding treatment choices reveal that there are significant relations between some elements not considered before, e.g. treatment decision was understood as more significant in situations that have no clear, preferable option concerning side effects and proof of efficacy. Finally, the research found an agreement among the three groups of participants about the issue of when shared treatment decision making should be used. Patients were of the view that situations like end of life decisions and prevention are to be considered as issues of knowledgeable patient choice rather than the doctors and health administrators. Also, reasons stated concerning the relevance of the factors also differed between groups. While patients emphasised patients' wellbeing, doctors, to a certain degree, stressed adherence and medical conditions.

7.4 **Importance of patient preference of intervention**

Patient preference has been increasingly recognised and reported widely in the literature. Outcomes of studies conducted on patient preference of intervention show reasons why investigators are advocating for clinicians to elicit and incorporate patients' preferences as part of their clinical practice. As an essential and integral part of evidence-based practice (EBP) in medicine and psychology, patient preference of intervention is a widely accepted method of providing ideal treatment to patients (Hess 2017). The principle of evidence-based practice consists of three separate but interrelated components: patient values, best research evidence

and clinician expertise (Rabins et al. 2007). This indicates a larger and more inclusive view than the previously used approaches which place a lot of emphasis on research evidence to the exclusion of other factors, including patient values and preferences (Stevens 2013). Research has shown that patients are ready to refuse receiving empirically-based treatments in order to obtain other treatments that they feel will be very comfortable and important to them (Swift and Callahan 2010). It is important therefore that clinicians become comfortable with their patients' preferences and are flexible and considerate of them while making treatment decisions. Another reason why patient preference should be considered by clinicians is that patients may have personal issues that may not be known by clinicians even though they (clinicians) are more knowledgeable about diseases as well as the efficacy and adverse effects of treatments than the patients. Thus, given the importance of patient preference of treatment and the effects of preference on treatment outcome, it is essential that clinicians understand and incorporate this important variable in their treatment decisions.

A number of researches have been conducted to find the precise preferences that patients hold about treatments and what are the determinants of their preference. Yet, very little is known about what influences patients' preferences. Swift and Callahan (2010) observed that, because of the empirically supported treatment movement, less is known about the role treatment efficacy plays in ascertaining patient treatment preferences; thus clinicians may likely consider an intervention that is more efficacious than others, particularly the ones reported in recently conducted randomised-controlled trials (i.e. the intervention with the best empirical support). On the other hand, patients may not value and prefer the so-called empirical support or treatment efficacy. The question then is, when trying to get treatment, do patients at all times prefer to be

given the intervention with the best empirical support, or would they be prepared to be given an intervention with lesser efficacy to ensure that their other preferences are met?

7.5 **Methods of eliciting preference**

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7.6 **Stated preference elicitation method:**

The stated preference elicitation method involves asking the patients to mention their preference from a group of two or more alternative treatment options in a kind of imaginary situation. This preference elicitation method consists of trade-offs being made by the patients who reveal the value (or utility) they associate with the chosen treatment plan or aspects of healthcare services and products. This method is important when a service or policy is not available at present, or where the goal is to assess patients' preferences among available treatment choices. The method can lead clinicians or researchers to understand the processes of choice and the decisions patients are likely to make through hypothetical circumstances created with different levels of attributes

for the patient to choose from(Ali and Ronaldson 2012). Stated preference elicitation methods have been criticised because they do not symbolise the actual choices/decisions patients are likely to make. Critics of stated preference methods are of the view that the patient who has given his or her preferred choice may act differently when presented with actual choice decisions in real life as opposed to the hypothetical situations found in stated preference methods. Stated preference elicitation methods are categorised into two:

(i) Cardinal preference method: in the cardinal preference method, patients' preferences for treatments are quantified on the basis of the responses they provide. The patients estimate the extent to which one health programme or treatment modality or health state is preferred over another (Ratcliffe et al. 2009). Ali and Ronaldson (2012) mentioned that the two mostly used cardinal preference methods include the standard gamble (SG) and time trade-off (TTO). While using these methods, the patients trade-off between probabilities, uncertainties or risks related to a particular health state or services. These methods are used to scale patients' health states by requesting them to trade-off between years of good health (TTO) or threat of instant death (SG) against continuing in a specific health state for a given period of time. Cardinal preference methods are therefore used to come up with quantitative weightings for health states or values of treatment options.

(ii) Ordinal preference elicitation method: this method deals with ordering preferences of two or more alternative approaches without directly establishing the extent of liking one alternative over the other (Ali and Ronaldson 2012). The most commonly used ordinal preference methods in the healthcare system are discrete choice experiments (DCE) and ranking exercises (Ratcliffe et al. 2009; de Bekker-Grob et al. 2012).

In DCE, patients are presented with a number of treatment choices and the opportunity to select one out of two or more alternative treatment options, with each option representing an exclusive combination of specified attributes and levels of the treatment or service, under consideration (Lancsar and Louviere 2008). When the patients' choices are analysed, the importance of the attributes and the choice trade-offs they make will reveal the values of their preferred choice over another. The DCE method depends on some basic assumptions that patients make choices such that they make best use of their own utility or value. The discrete choice experiment method is now a widely used tool for eliciting and measuring healthcare preferences and its specific advantage in quantifying patients' preferences in terms of priority-setting is also growing (de Bekker-Grob et al. 2012; Whitty et al. 2014a). The method has been used to evaluate patients' preferences of desirable features of the healthcare service as well as the distribution of healthcare within a population (Whitty et al. 2014b).

Ranking is a simple process, as it includes arranging items, in a logical order. Related processes of ordering are done instinctively by a number of people daily, for example, while selecting what clothing to put on, planning their activities for the day or selecting food from a set of choices (Craig et al. (2009). The high-level relationship between rank responses and important valuations means that ranking is often used more generally to infer values of health states based on patients' preferences to be utilised in designing or administering interventions.

These are methods that are easy for patients to comprehend and easy to administer compared with standard gamble and time trade-offs. The methods are used for valuation health states, but are more frequently used to appraise healthcare services, products,

practices, interventions and health policies (Ali and Ronaldson 2012; de Bekker-Grob et al. 2012).

7.7 **Revealed preference elicitation method**

The revealed preference elicitation method consists of the valuation of choices by assessing the actual patients' "behaviour in real-life situations so as to reveal the trade-offs the individuals or patients truly made". However, Ali and Ronaldson (2012) cautioned that conducting assessment of patients' preferences using the revealed preference method is limited in that there must be existing health-related programmes or interventions for the patients to choose from in order to determine their preferences. Furthermore, there are other problems associated with the revealed preference methods. These include the lack of knowledge from the patients about the available treatments and services,for instance, inadequate information about certain drugs or psychotherapeutic interventions and when they are to be used. Similarly, it is not easy to understand how revealed preference can be used for estimation of choices that are not usually made voluntarily. Finally, revealed preference methods are not convenient for assessing assumed situations or interventions that are not yet developed. Based on these shortcomings, stated preference methods have become the most widely used method of eliciting preference in the fields of healthcare research and practice (Ali and Ronaldson 2012).

In this phase of the study, patients' preference of non-pharmaceutical intervention for reducing pre-operative anxiety will be elicited through stated preference elicitation methods, using the ranking method.

7.8 Method

7.8.1 Study design

This phase of the study employed the presentation of cards, each containing a picture of a surgical patient receiving one of the four commonly used non-pharmaceutical intervention approaches for reducing pre-operative anxiety before undergoing surgical operation. Participants were therefore required to rank order the interventions according to their degree of preference for each intervention. Ali and Ronaldson (2012) defined ranking as an exercise undertaken to allow participants to rank order all available options from the most preferred to the least preferred alternative, thereby providing comprehensive ordering of all available alternative choices. The research participants in this study were instructed to rank order the interventions by giving the least preferred intervention the rank of 1, the next preferred to be given the rank of 2 and the most preferred the rank of 4. Fok et al. (2012) claimed that a complete ranking exercise may produce more effective preference valuation as opposed to other methods, such as discrete choice experiments (DCEs), but they warned that the sorting task may be cognitively too complex or time consuming for participants which may lead to biased estimation of preference.

The rationale for the survey of patients' preference of intervention for reducing pre-operative anxiety was to enable the generation of new knowledge, from the patients' perspectives, of which non-pharmaceutical intervention approach elective surgical patients would prefer to be used in reducing their anxiety before undergoing surgical operation. Also, considering the setting where the study was conducted, a significant number of the participants were either illiterate or semi-literate who could have found it very difficult to read and understand the information written by clinicians for patients to read. Thus, presenting pictures of the different types of

interventions and asking them to rank order them according to their preferences is more likely to yield a more objective result. Craig et al. (2009) signalled that illiteracy and innumeracy can impede efforts to evaluate societal preferences over health states, in the developing world. In parts of the world with relatively low educational attainment, using common valuation methods like TTO may not be possible. Therefore, simple ranking techniques may do well in these situations and may adequately capture preferences from less numerate respondents.

7.8.2 **Recruitment of the participants**

A convenience sampling method was used to select the participants for the study. According to (Robson 2011), convenience sampling as a sampling method consists of selecting the nearest and most convenient people to serve as the research participants. This process is to be continued until the researcher has recruited the required number of research participants needed for the study. In this study, a convenience sample of 30 patients, consisting of 17 male and 13 female, diagnosed with different illnesses and booked for surgical operation, were recruited for inclusion in the study. Their ages ranged between 17 years to 70 years (mean age= 41.03 and standard deviation= 16.09).

In the hospital where the study was conducted, elective surgical operations are performed twice a week – that is, on Tuesdays and Thursdays. Patients on the waiting list arrive at the hospital on Mondays and Wednesdays to receive instructions about their operations and undergo other necessary pre-operative preparations. To recruit patients for the study, the researcher was based in the consulting clinic where patients on the waiting list come to see the surgeons or nurses before the day of their scheduled surgical operations. After consulting with their doctors, surgeons or nurses, the researcher approached and informed the patients about the research and sought their participation. Patients

who agreed to participate were enrolled and given identification numbers. Consent forms and information sheets containing details about the research and what is required as they participated in the study were also given to them to read and sign. The participants completed the consent forms and were reminded that they retained the right to discontinue participation in the study at any time and that this would not in any way affect the service they received in the hospital.

7.8.3 Procedure used for data collection:

Patients' preferred non-pharmaceutical intervention for reducing pre-operative anxiety was elicited via a systematic approach informed by the work of (Miranda 2009). Using this procedure, in a face-to-face meeting with each patient, the researcher first informs the patient of the different alternative intervention approaches considered suitable to alleviate the pre-operative anxiety with which the patient presents. The different intervention approaches are those found to be very effective and relevant based on existing evidence and are the most frequently used in the hospital where the study was conducted. Secondly, the researcher provides patients with brief information related to each of the intervention approaches summarised and written in the form of an information leaflet. Patients who can read it on their own will be handed the summary description of the interventions to read. Those who cannot read will have the description read to them by the researcher. An opportunity is given to each patient to ask questions about the interventions should they have any. The researcher responds to the questions the patients ask about the interventions. The researcher then presents cards containing pictures of patients receiving each of the different intervention strategies to the patient. The cards are presented one after the other for a brief period of 15–25 seconds. Third, the researcher asks the patient to think through and rate the degree to which each intervention is suitable, appropriate and

acceptable to him/her and therefore preferred to be used to alleviate the anxiety he/she experiences. Fourth, a paper containing a list of the different interventions is given to each participant to scale their preferences. The least preferred intervention is given the rank of 1, the next least preferred the rank of 2, and the most preferred intervention is given the rank of 4. The ranking is done to assist the patient in identifying the intervention that best fits with his/her needs and preferences.

7.8.4 Rationale for using systematic procedure and ranking method:

The use of the systematic procedure was adopted in this research project due to its simplicity and ease of use. Using this method, participants who could read the description on their own, were able to read without difficulty. Participants whose anxiety level is very high could find it difficult to understand the content of the material written to describe the intervention strategies. Also, those with low literacy and numeracy skills would benefit from having the material read to them by the researcher, i.e. the description of the interventions for dealing with pre-operative anxiety, to understand the nature of the interventions, and to choose and rank order the interventions according to their preferences.

Findings

The participants' scores of ranking the different non-pharmaceutical intervention strategies used for reducing pre-operative anxiety before undergoing surgery were collated and analysed using the SPSS software, version 23. As the study does not involve the testing of hypotheses or drawing inferences about the wider population, descriptive statistics was used to analyse the data. According to (Rodrigues et al. 2017) descriptive statistics is an important statistical method that aids researchers and readers of

the research report to comprehend information or data collected by means of its organisation and summarisation.

Summary tables were constructed to show the frequency and percentage of participants' degree of preference for each intervention approach. Also, bar charts were constructed from the data to provide a visualised form of the participants' intervention preference. The analysis starts with presentation of a summary table for counselling services as one of the four most-used interventions for reducing pre-operative anxiety in Nigeria.

Table 25 scores of participants' responses for counselling services

	Frequency	Percent	Valid Percent	Cumulative Percent
Totally not Preferred	8	26.7	26.7	26.7
Not Preferred	9	30.0	30.0	56.7
Preferred	7	23.3	23.3	80.0
Most preferred	6	20.0	20.0	100.0
Total	30	100.0	100.0	

The participants' scores for the preference of counselling services for reducing pre-operative anxiety show that, of the 30 participants used in the study, eight (26.7%) 'totally did not prefer' counselling as intervention as a means of reducing their anxiety before surgery. Nine participants (30%) did 'not prefer' counselling, seven (23.3%) 'preferred' it, while the remaining six (20%) participants ranked counselling services as their 'most preferred' choice. The bar chart below presents the participants' level of preference for counselling services as an intervention for reducing their pre-operative anxiety.

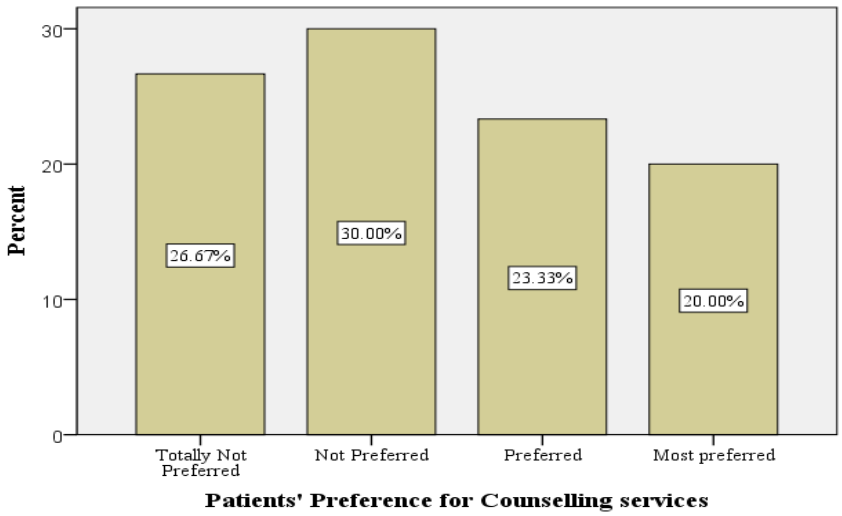

Figure 18: preference of counselling services

Table 26 scores of participants' responses for Information and Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Totally Not Preferred	4	13.3	13.3	13.3
	Not Preferred	6	20.0	20.0	33.3
	Preferred	12	40.0	40.0	73.3
	Most Preferred	8	26.7	26.7	100.0
	Total	30	100.0	100.0	

On information and education intervention, the research participants' scores indicate that only four (13%) participants indicated that they 'totally did not prefer' information and education as a strategy for reducing their pre-operative anxiety. Another six (20%) participants ranked information and education as a 'not preferred' choice, while a large number of participants (12, 40%)

scored ‘preferred’. The remaining eight (26.7%) participants chose information and education as their ‘most preferred’ choice for reducing their pre-operative anxiety before undergoing surgical operation. In total, on the information and education sub-scale, a total of 33.3% of the participants did ‘not totally preferred’ or ‘not preferred’ information and education as a means of reducing their anxiety prior to surgery. On the other hand, 66.7% of the participants either ‘preferred’ or ‘most preferred’ information and education as their chosen method of reducing pre-operative anxiety before undergoing surgery. The information for the participants’ ranking of information and education as a strategy for reducing pre-operative anxiety is presented in the bar chart below.

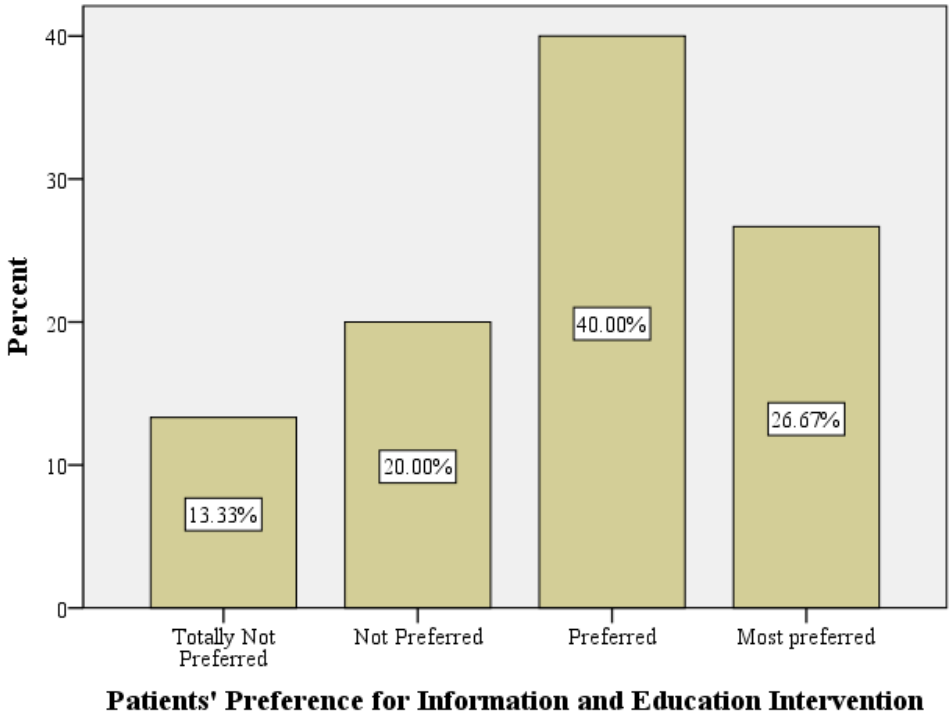

Figure 19: Participants' Preference for Information and Education

Table 27: scores of participants’ responses for music therapy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Totally not Preferred	17	56.7	56.7	56.7
	Not Preferred	6	20.0	20.0	76.7
	Preferred	4	13.3	13.3	90.0
	Most preferred	3	10.0	10.0	100.0
	Total	30	100.0	100.0	

The participants' ranking of music intervention shows that, out of the 30 participants, more than half (17, 56.7%) of the participants stated that they 'totally did not prefer' music intervention as a means of reducing their anxiety. Another six (20%) did 'not prefer it', four (13.3%) preferred it, while the remaining three (10%) participants indicated that music intervention is their preferred choice. Thus, regarding music therapy as a means of reducing anxiety prior to surgery, only 23.3% of the participants expressed preference for music to be used in reducing their pre-operative anxiety. The vast majority of the participants, 76.7%, don't like music as an intervention to be used in reducing their anxiety prior to surgery. The bar chart below presents the participants' ranking of music intervention.

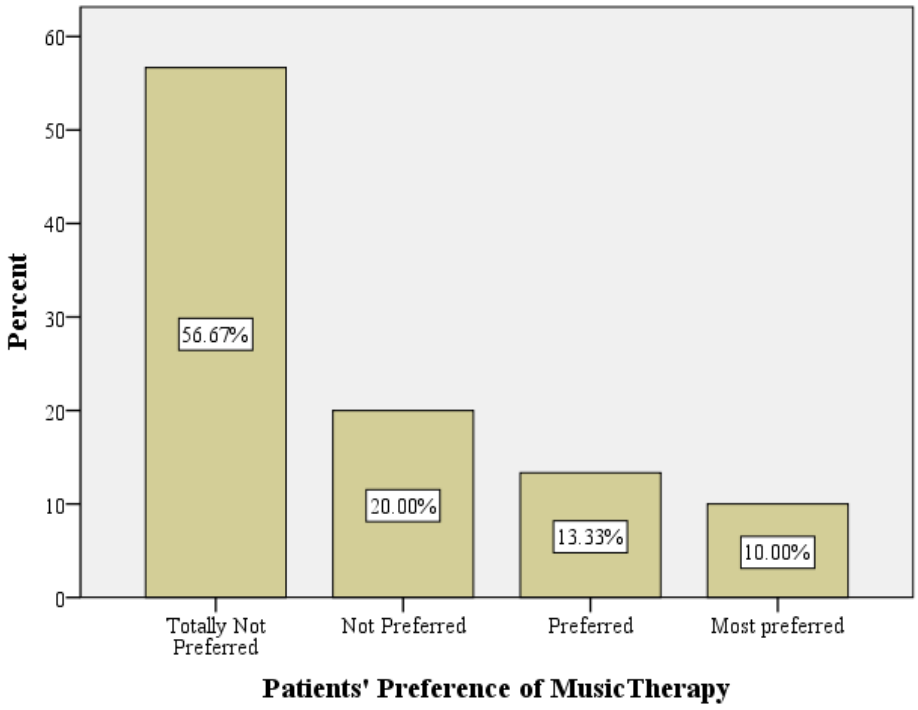

Figure 20: Participants Preference of Music Therapy

Table 28: scores of participants' responses for video film intervention

Levels of preference	Frequency	Percent	Valid Percent	Cumulative Percent
Totally not Preferred	5	16.7	16.7	16.7
Not Preferred	7	23.3	23.3	40.0
Preferred	10	33.3	33.3	73.3
Most preferred	8	26.7	26.7	100.0
Total	30	100.0	100.0	

Regarding video film intervention as a means of reducing pre-operative anxiety in patients undergoing surgery, it can be seen from the participants' scores that only five (16.7%) participants ranked video film intervention as their 'totally not preferred' option; seven (23.3) participants ranked it as their 'not preferred' intervention method of anxiety reduction. Conversely, ten (33.3%) participants indicated that they preferred video film intervention and the remaining eight (26.7%) endorsed video film intervention as their 'most preferred' method to be used in reducing their pre-operative anxiety. The bar chart below presents the participants' levels of preference for video film intervention.

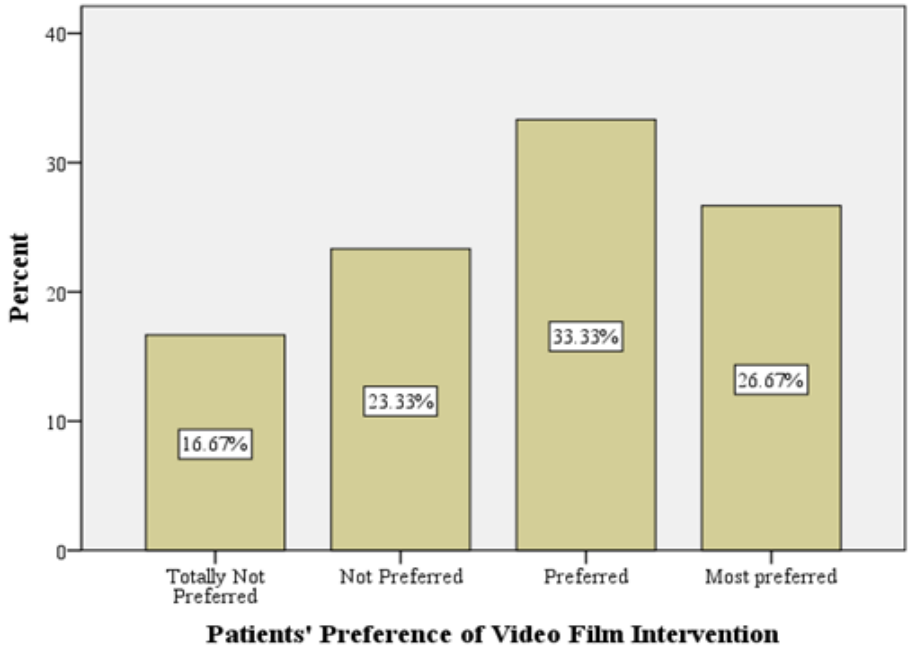

Figure 21: Participants' preference of Video-Film Intervention

Discussions

Most of the studies examining patient preference of intervention focus on investigating how patients choose between pharmacological or psychological interventions. A greater number of these studies focus mainly on core mental health or psychiatric disorders. Research is limited on how surgical patients develop a preference of non-pharmaceutical intervention for the reduction of their pre-operative anxiety. Also, there are no theoretical models available that could be used as levels of analysis to explain the process of surgical patients' preferences of non-pharmaceutical intervention for pre-operative anxiety reduction. This study is the first one designed to investigate preference of non-pharmaceutical intervention for reducing pre-operative anxiety in patients scheduled to undergo elective surgery.

The call for a patient-centred healthcare delivery system that is aimed at putting patients at the centre of the therapeutic process by involving them in participation in treatment decisions has been a major policy drive in many countries around the world (Coulter 2011). This is based on the fact that involving patients in treatment decisions and understanding their preferences for interventions and incorporating them in clinical decisions is considered a way forward in achieving the patient-focused care that facilitates satisfaction with and encourages patients' adherence to treatment (Collins et al. 2007; Coulter 2011). It has been recognised that engaging patients actively in decisions and choice of treatment about their health is not only necessary for achieving better therapeutic outcomes but also an exercise of the patients' rights to self-determination (Coulter et al. 2008; Coulter 2011).

Thus, patients' preferences assessment is undertaken to assist in providing good patient-centred clinical decisions and to tailor interventions and align them with the patients' wants and needs.

There is a general call for health professionals to provide patients with adequate information and encourage them to participate in making choices about what intervention should be administered to them. However, evidence suggests that this much-advocated practice of involving patients in deciding which treatment they will be administered and giving them the opportunity to choose from available treatment options is *not* widely practised in many hospitals (Aliyu et al. 2015). A number of barriers have been reported that impede the provision of preferred intervention to patients. Some of these barriers are patient-related, others are clinician-related and still others are hospital or policy-related.

In this study, the participants have shown different preferences for the non-pharmaceutical pre-operative anxiety reduction interventions used in most of the surgical units of hospitals in Nigeria. Most of the participants' preferences of the non-pharmaceutical interventions were arrived at as a result of their past experience of having had one or another intervention during previous surgery or that they made their choices on the basis of what they feel or think would be a better intervention that will reduce their pre-operative anxiety. This indicates that the research participants develop their preferences on the basis of the understanding of how their pre-operative anxiety affects their feelings and experiences which make them think that their chosen intervention will give them the desired level of satisfaction with the surgery.

However, despite the fact that the participants of this study have stated their preferences of the non-pharmaceutical interventions presented to them by the researcher, a lot of the participants have stated that their clinicians did not inform them of, or give them the opportunity to choose or select, any form of non-pharmaceutical pre-operative anxiety reduction intervention strategies. This is

therefore a clear indication that, in the hospital where this study was conducted, surgical patients are just left at the mercy of their clinicians to choose what they feel is the appropriate pre-operative anxiety reduction strategy for their patients. This finding is similar to the study report from Nigeria (Aliyu et al. 2015) which surveyed peri-operative nurses' knowledge, attitudes and practice of pre-operative visit which involves the assessment of patients' psychological and physical fitness to undergo the planned surgery. The findings by (Aliyu et al. 2015) show that 96% of the nurses surveyed stressed the importance of the practices of pre-operative visits but a total of 63% of the pre-operative nurses working in the Nigerian tertiary health facilities reported that they did not practise it. By implication, their patients undergo surgical operations without adequate pre-operative assessment and preparations, let alone providing them with the opportunity to choose an intervention that they feel will reduce their surgical stress and anxiety. A significant number of the nurses have reported certain factors militating against the practice of pre-operative assessment and preparations: these are the timing of the pre-operative visit and insufficient time by the pre-operative assessment nursing staff or anaesthesiologists to carry out pre-operative assessments (89%) and work overload (66%).

The most preferred non-pharmaceutical pre-operative anxiety reduction strategy chosen by the participants of this study is the use of information and education. The literature also shows that patients valued and benefited from pre-operative information and education (Kruzik 2009). However, certain barriers have been identified, making it difficult to provide this service to pre-operative patients in the hospital where this study was conducted. For example, pre-operative information and education used for reducing pre-surgical anxiety is mostly given at the pre-operative assessment clinics by either the pre-operative nursing staff or anaesthesiologists. Usually,

in the hospital where this study was conducted, patient preparation for elective surgery begins in the evening preceding the day of surgery and continues in the morning of the surgical operation. Not all elective surgical patients are admitted to stay overnight in the hospital. Most of them spend the night preceding the surgery at home and come to the hospital in the morning to continue with the pre-operative preparations and be operated on the same day. From the evening before and into the morning of the surgery, a series of physical and psychological pre-operative preparation activities take place. The pre-operative information is given during the patient's visit prior to surgery. The members of the pre-operative team meet each surgical patient and give them verbal information, and for those who can read, written information is given to them. The nature of the pre-operative information varies depending on the theme it focuses on. The content of the verbal information focuses on the outcomes of tests and how to go about the surgery. Written information is centred on the surgical operation, associated risks, duration of the operation, the surgical site, size of the wound, fasting, pain and its treatment, possible complications, hygiene and post-operative follow-ups. Thus, patients do not have ample time to go through this series of activities and read the written information given to them by the pre-operative assessment team members. The Association for perioperative Practice has highlighted that, with elective surgical procedures, patients come to hospital one or two hours before their scheduled time of operation, are operated on, and are dressed and ready for discharge one or two hours after their surgery (Association for preoperative practice 2008). Elective surgery has the advantage in terms of the patients being operated on within the shortest possible time, but it also brings with it the problem of not giving the patients enough pre-operative preparation to attend to the psychological dimension of their surgery. The issue of inadequate time for surgical patients to go through all the

rudiments of pre-operative preparations for allaying their anxiety is not limited to the lack of adequate time to go through the written information given to the patients. It also affects the verbal information provided by the pre-operative assessment team. It has been reported in the literature that the feelings of apprehension and nervousness in pre-operative patients reduce their level of attention and concentration (Vaughn et al. 2007), making it difficult for them to focus on and understand the pre-operative instructions from healthcare providers. Therefore, while feeling the tension of confronting surgery, it is quite difficult for patients to pay attention to and comprehend the details of verbal information they are given.

Another important barrier to receiving information and education is concerned with the level of rapport and trust patients establish with the clinicians. Because elective surgery is characterised as one that gives little time to the encounter between patients and clinicians, to establishing rapport with trust and confidence in the clinicians, thereby accepting the clinicians' advice is quite difficult. This problem has been highlighted by (Aasa et al. 2013) that, without a trusting relationship, which facilitates the acceptance and adhering to what the clinicians tell the patients about their pre-operative anxiety and advice on post-operative care, cannot be achieved. Consequently, patients will end up undergoing surgical operations without them having been properly prepared and therefore predisposed to experiencing the effects of improper pre-operative preparations (Aasa et al. 2013).

Video film intervention is the second preferred type of pre-operative anxiety reduction strategy ranked by the participants of this study. However, this type of intervention has not been practised in the hospital where the study was conducted. Since the participants of the study have given it a higher ranking, showing it to be a preferred choice, it is important for the hospital to design a pre-operative

video and start using it in the pre-operative clinic so that surgical patients, particularly those who are not able to read and understand written materials, can benefit from the anxiety-reducing effects of the video film intervention. One major advantage to be derived from the use of video film intervention is that video clips can be produced and shared with the patients on their mobile phones which can be taken home and watched by the patients before coming back to the hospital for surgery. This will resolve the problems associated with constraints of adequate time to read printed materials. Because video film is an audio-visual material, it has the ability to effect behaviour change easier than written material or verbal information would do. This is possible because the patients will watch the actors vividly as they go through the pre-operative as well as the operative process. The overall aim of video film intervention in pre-operative anxiety reduction is to expose the pre-operative patients to the surgical environment, and to see the entire process they are about to undergo. Usually, actors in such videos behave in a non-anxious manner, which pre-operative patients, for whom the clips were prepared, would have the ability to model and identify with the patient they see in the video and therefore become less anxious. With repeated exposure and continuously watching the video, anxious patients will learn to behave in the manner in which they see the non-anxious patients/actors behaving.

The preference of video film intervention in this study is in line with the results of some earlier studies. Some randomised controlled trials (RCTs) (Jlala et al. 2010; Arabul et al. 2013; Wu et al. 2014) found that participants assigned to the video film intervention group were more satisfied with the video film interventions and that they had lower post-operative STAI scores as opposed to participants in the control groups. These findings suggest that pre-operative video intervention increases the patients' satisfaction with the cardiac catheterisation procedure as well as upper and lower limb surgeries

respectively. In the present study, though the focus is to find the preferences of non-pharmaceutical pre-operative anxiety reduction interventions of elective surgical patients, the finding that 70% of the participants 'preferred' or 'most preferred' video film as a pre-operative anxiety reduction intervention means that, when video film intervention is administered to the participants of this study, with the aim of reducing their pre-operative anxiety, they stand a chance of responding positively and having their pre-operative anxiety significantly reduced.

Music therapy is a recognised non-pharmaceutical therapy, usually provided by trained healthcare professionals or professional music therapists, to assist patients suffering from injury, disease or disability by way of enhancing them to adjust psychologically and emotionally and to cope with the stress and anxiety related to their illnesses. However, despite the growing interest in the use of music therapy in clinical practice, music therapy remains an unpopular and the least preferred type of non-pharmaceutical intervention chosen by the participants of this study. This is attributed to the participants' cultural and religious beliefs. Over 90% of the participants of this study are Muslims. The position of music in Islam is the main reason for not preferring music intervention by the participants of the study. In the Muslim-dominated part of northern Nigeria, and particularly among adherents of some Islamic sects, playing or listening to music is considered as taboo. However, adherents of other sects of Islam do not consider music in the same way– they claim that there is no verse in the Qur'an that explicitly prohibits listening to or playing music. Therefore, among the participants of the study who hold negative beliefs about music, playing music to reduce their pre-operative anxiety is not acceptable. Many of the Muslim participants in this study, when informed about music therapy as a form of non-pharmaceutical intervention being used as a therapy for reducing anxiety-related

problems, reported that they have never heard about it. A view shared by most of the participants is that, rather than listening to music while undergoing surgery, which may have the risk of possible death; it is better for them to listen to a recitation of the Qur'an which is also rhythmically recited in a similar manner to music. They believe that, when one is listening to music, he/she is surrounded by devils; but when one is reading the Holy Qur'an or listening to it, the person is surrounded by the angels of *Rahma* (blessing). However, this view is only held by and applies to patients of the Muslim faith. For participants of the Christian faith, which has no restrictions on playing and listening to music, they found music therapy to bea relevant and acceptable intervention as there is no restriction on playing and/or listening to music in Christianity.

Recommendations

7.8.5 Recommendations for clinical practice

The main barrier to eliciting patients' preference of interventions is related to gap in communication between clinicians and their patients (Moore et al. 2017). Adequate communication skill is necessary for clinicians to be able to interact and communicate with their patients in order to provide complete and balanced information on the advantages and disadvantages of all available pre-operative anxiety reduction interventions. (Visser et al. 2014). To solve these problems of patients not being properly informed, it is recommended that clinicians receive adequate training on how to disseminate information to their patients in a typical clinical encounter. A good training programme is recommended, aimed at expanding the clinicians' knowledge and communication skills so as to be able to guide the patients in selecting their preferred non-pharmaceutical pre-operative anxiety reduction interventions that will make their operation a less anxious one. It has been reported

in the literature that, as patients become more involved, they become well-informed; their apprehension reduces, thereby they become more pleased with the treatment. Thus, when clinicians are trained in communication skills, they learn to use the simplest language and use good communication techniques that will help in guiding and empowering patients to be actively involved and make informed choices about their preferred non-pharmaceutical interventions. Good communication with patients increases their knowledge and aids their memory, as well as their ability to remember what has been discussed, thus making them feel more in control of their care.

It is the ultimate goal of person-centred care to make patients' preference of intervention the centre of the therapeutic relationship. Such a relationship assists the clinicians to build trust with the patient and encourage them to make informed decisions that affect their health. To achieve this, it is recommended that clinicians listen to and appropriately respect the preferences of their patients and understand them as they affect how the patients become engaged and participate in their treatment. Respecting the views of the patients and offering them the appropriate support needed to participate efficiently in deciding and choosing their preferred pre-operative anxiety reduction intervention will increase their satisfaction with the treatment and the entire healthcare services. Thus, empowering patients to state their preferred treatment in the context of the therapeutic relationship is recommended for clinicians dealing with pre-operatively anxious patients. This enhances the partnership between the clinicians and the patients, and helps support the patients' active participation in taking charge of their health. This makes the patients feel they are active partners, recognised and valued, and that the clinicians are working in collaboration with them to draw up a workable treatment plan for their health. If successfully built, a good therapeutic relationship

helps the clinicians in meaningful ways to decrease the physiological and psychological distresses affecting their patients' health.

When planning interventions, it is recommended for clinicians to collaborate with the patient using the participatory model of shared decision making, giving the patients their right to select the preferred interventions that they feel they will be comfortable with in treating their health conditions. The participatory approach gives patients the right to choose the treatment or interventions that satisfy their individual needs. It is recommended that, in clinical practice, clinicians dealing with pre-operatively anxious patients should engage their patients to take part in decisions to choose their preferred interventions for their pre-operative anxiety. This can be achieved by discussing and providing the relevant information to help the patients understand the different treatment options available and to respect and see them as experts in themselves and their life. During pre-operative assessment and treatment planning sessions, it is recommended to spend more time with the patients to understand their life situation from their viewpoint. This relationship makes it easier for the clinicians to identify the actual and possible healthcare needs of the patients. If these recommendations are used, the clinicians will form a collaborative relationship with the patients, recognise their priorities and empower them by providing relevant, available evidence-based information that is consistent with the patients' life situations, needs and preferences.

Recommendations for policy

Research has shown that patients play a better role in their healthcare by selecting the most preferred and appropriate treatments for their health conditions. The evidence shows that patients' involvement in treatment decisions can not only increase

patients' satisfaction with the treatment but can also be economically and clinically effective. However, in the case of treatment of pre-operative anxiety for elective surgical patients, due to the acute shortage of time during the pre-operative assessment, the opportunity for patients to be presented with the various non-pharmaceutical intervention techniques and to make their preferred choices from these interventions is limited. Therefore, it is recommended that hospitals make policies that make time available for clinicians to interact with the elective surgical patients to build rapport and win their confidence so that the patients can open up and discuss their care and make choices about their preferred non-pharmaceutical pre-operative anxiety reduction interventions.

Despite the findings of this study that the participants have expressed preference of one non-pharmaceutical pre-operative anxiety reduction intervention or another, certain patient-related barriers were reported as impediments for clinicians to elicit patients' preference of interventions. Factors such as the patients' attitudes, age, gender, severity of illness, previous experience of hospitalisation, treatment or surgery and readiness to provide information have been reported as obstacles in achieving patient-centred and preference-based intervention. In order to provide the most widely advocated patient-centred care with the aim of reducing pre-operative anxiety in patients undergoing elective surgery, it is recommended that clinicians sensitise and educate the surgical patients, and help them to change their attitudes by engaging them to understand that they should be in control of their health and can choose what intervention is to be administered to them.

7.8.6 Recommendations for research

The evidence found from this study shows that the study participants have different preferences of non-pharmaceutical pre-

operative anxiety reduction interventions. Therefore, a more rigorous research is needed to design and develop the non-pharmaceutical pre-operative anxiety reduction intervention techniques presented to the participants of this study. After designing the interventions, another rigorous study should be conducted to administer the designed pre-operative anxiety reduction interventions and test their effectiveness on those patients who expressed preference of those interventions and to see whether they would significantly reduce their pre-operative anxiety.

Even though the participants of the study have shown their preferences for different non-pharmaceutical pre-operative anxiety reduction interventions, it is, however, not known whether the clinicians, who are to administer these interventions, are ready to accept and administer them to pre-operatively anxious patients. Therefore, further research is needed to find out whether the clinicians are ready to incorporate the use of non-pharmaceutical pre-operative anxiety reduction interventions into their routine pre-operative care.

7.9 **Limitations of the study**

Apart from the findings showing that participants have preferences for some and no preference for other non-pharmaceutical pre-operative anxiety reduction interventions, the findings have to be treated with caution as the study is not without limitations. First, the study is a single centre study which is naturally economical and easy to conduct, which makes findings inadequate to inform clinical practice. Second, the study also used a small number of participants. This may increase the probability of a Type II error, which also reduces the generalisability of the findings of the study. However, considering the nature of the study population (elective surgical patients), and the hospital setting where the study was conducted, the use of 30participants is sufficient to provide a

significant result. Third, the data for this study was collected by means of a systematic approach, using a ranking procedure. This method was chosen bearing in mind the low educational status of the population from which the participants were drawn. Further, there is a need to improve the method by using validated and standardised preference elicitation instruments. More so, the use of the interview method will also help provide qualitative data that may expose reasons why patients preferred the intervention they prefer and why they did not prefer what they don't prefer.

Although music therapy is becoming a popular mode of non-pharmaceutical intervention used to reduce both physical and psychological distress in patients, there are some issues that need to be considered while using music therapy. Music preference is personal and individualistic. Therefore, music that is appealing to one patient may not be appealing to another. And in addition, there is limited information about which music should be played to patients and what effect it would have on them. These are issues associated with music therapy that need to be addressed.

One of the main barriers to eliciting patients' preference of non-pharmaceutical pre-operative anxiety reduction interventions is that many clinicians are lacking in adequate communication skills needed to provide complete and balanced information on the advantages and disadvantages of all available pre-operative anxiety reduction interventions (Visser et al. 2014). To address the issue of patients not being properly informed, adequate training on how to disseminate information to patients in a typical clinical encounter should be put in place. A good training programme is recommended, aimed at expanding the surgeons', nurses' and other clinicians' knowledge and communication skills so as to be able to guide the patients in choosing preferred non-pharmaceutical pre-operative anxiety reduction interventions that will make their

surgical operation a less anxious one. It has been reported in the literature that, as patients become more involved, they become well informed; their apprehension reduces and they become more pleased with the treatment. Thus, when clinicians are trained in communication skills, they learn to use the simplest language and use good communication techniques. Good communication with patients increases their knowledge and aids their memory, as well as their ability to remember what has been discussed, thus making them feel more in control of their care.

7.10 **Summary of the chapter**

This chapter presents the findings on the study of participants' preferences of non-pharmaceutical pre-operative anxiety reduction interventions. The stated preference elicitation method was used to find out what non-pharmaceutical pre-operative anxiety reduction intervention is preferred by the participants of the study. To find this, participants were presented with four commonly used non-pharmaceutical pre-operative anxiety reduction interventions to rank order them according to their level of preference, with the least preferred intervention ranked 1, and the most preferred ranked 4. The findings were analysed and presented in terms of the percentages of those participants who preferred and those who did not prefer a particular intervention. The findings of the study reveal that the research participants have a broad range of preferences for the different interventions used in reducing anxiety in patients undergoing surgical operations. Beginning with counselling services, the participants' preference for counselling shows that more than half of the study participants (56.7%) did not prefer counselling services as a means of pre-operative anxiety reduction; while the remaining 43.3% of the participants showed that they either 'preferred' or 'most preferred' to be counselled in order to reduce their anxiety in the pre-operative period. With regards to the participants' responses for information and education intervention

as a means of reducing pre-operative anxiety, the participants' rankings show that the majority of the participants prefer to be given verbal information and some wanted to be presented with written materials to read as a method of pre-operative anxiety reduction. Their scores indicated that more than half (66.7%) of the participants ranked the information and education method as their 'preferred' or 'most preferred' method of pre-operative anxiety reduction. Only ten participants (33.3%) ranked the information and education method as 'totally not preferred' or 'not preferred' intervention to be used in reducing their anxiety before they underwent a surgical operation. Regarding the music therapy intervention, more than three-quarters (76.7%) of the participants indicated that they did 'not totally prefer' or did 'not prefer' music as an intervention to be used for reducing their anxiety prior to surgery; while the remaining 23.3% of the participants ranked music intervention as either their 'preferred' or 'most preferred' option for pre-operative anxiety reduction. Finally, video film intervention is another intervention of choice for the study participants. The ranking scores indicated that up to 60% of the participants either 'preferred' or 'most preferred' video film as an intervention to be used in reducing their anxiety, pre-operatively. On the other hand, the remaining 40% of participants stated that they 'totally did not prefer' (16.7%) or 'did not preferred' (23.3%) video film as a pre-operative anxiety reduction intervention.

The findings of the study have a number of implications. First, strict adherence to the paternalistic model of the healthcare delivery system in which the clinicians dominate the entire clinical encounter was a major barrier to eliciting patients' preference of interventions. Following the paternalistic model, clinicians do not care to ask patients whether they prefer pharmaceutical intervention or non-pharmaceutical intervention, let alone ask which non-

pharmaceutical pre-operative anxiety reduction interventions they would prefer.

The findings of this study show that elective surgical patients have different preferences for different non-pharmaceutical pre-operative anxiety reduction interventions which should be considered when planning interventions. The findings from this study will also be important for researchers willing to conduct research on patients' preference of intervention. Being the first of its kind to gather information about elective surgical patients' preferred non-pharmaceutical pre-operative anxiety reduction intervention, researchers willing to perform a cross-cultural study will have data to work with which was obtained from speakers of one of the major ethnic nationalities in sub-Saharan Africa.

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Appendix 1: Participants information sheet

Title if the research: A Study of Translation of Measure and Prevalence of Pre-operative Anxiety, and Patients' Preference of Non-Pharmaceutical Pre-operative Anxiety Reduction Intervention in Nigeria

Dear Patient.

You are invited to participate in this research designed to translate a measure of preoperative anxiety, assess the prevalence of preoperative anxiety and patients' preference of non-pharmaceutical intervention to reduce preoperative anxiety in patients undergoing elective surgery. Before your decision to participate, it is important that you understand the reasons for conducting the research and what role you will play as a participant.

Please, read carefully the information contained on this page and feel free to ask any question in case anything you read is not clear.

The purpose of the research

This research is part of a requirement for PhD degree which I am currently undertaking at University of Bradford, United Kingdom. It is hoped that the research project will provide important information that will lead to understanding the experiences of preoperative anxiety from the perspective of patients awaiting elective surgery. The information will also assist in developing an intervention to be used by health care professionals to reduce preoperative anxiety in patients about to undergo elective surgery.

Your participation

You have been approached to participate in this research because you have been diagnosed as having an illness that requires elective surgery at Federal Medical centre Nguru where this research is designed to be undertaken. The study will involve up to 30 participants. You will be asked to provide information regarding your understanding of a translated questionnaire, factors responsible for your preoperative anxiety and your preference of non-pharmaceutical pre-operative anxiety reduction interventions. The interview will be tape recorded and the researcher will be taking notes of some vital information. Both the audio taped and written information will be kept in a password protected computer and will be destroyed immediately after the research.

The research does not bear with it any physical harm as it does not involve the administration of any painful stimuli. Should you experience any emotional distress as

you explain the most feared aspect of your surgery; adequate arrangements have been made for referral to appropriate psychological support system.

The data generated from the research will also be useful in giving recommendations for best practices and may provide understanding of the experiences of elective surgical patients in relation to preoperative anxiety.

Voluntary Participation, confidentiality and anonymity

Your participation in this research is completely voluntary. You also reserve the right to discontinue participation at any stage of the study without giving any reasons. If you withdraw from the research, unless you agree, all information provided by you will be removed from the study. Your decision will not in any way affect the care you receive in the hospital. Be assured also that all information you provide during the course of this research will be used for nothing but research, and will be kept with strict confidentiality. Any information related to you which leaves the hospital will not contain your name and address so that you will not be known.

Thank You.

Appendix 2: Consent Form

Title if the research: **A Study of Translation of Measure and Prevalence of Pre-operative Anxiety, and Patients' Preference of Non-Pharmaceutical Pre-operative Anxiety Reduction Intervention in Nigeria**

Please tick (✓) either Yes or No against each of the following statements as it applies to you. Yes ☐ No ☐

1. I have read all the details about the research in the Information Sheet. Yes ☐ No ☐

2. I have been given the chance to ask questions regarding the research and my role as a participant Yes ☐ No ☐

3. I know I can withdraw from the research at any time without giving reasons and that I will not be penalised for doing so. Yes ☐ No ☐

4. I voluntarily agree to participate in the research Yes ☐ No ☐

5. It has been clearly explained to me that all information I provide will be treated with utmost confidentiality and anonymity Yes ☐ No ☐

6 The procedures for data publication, sharing and archiving have all been explained to me in detail Yes ☐ No ☐

7 I understand that other researchers will have access to this data only if they agree to preserve the confidentiality of the data and if they agree to the terms I have specified in this form. Yes ☐ No ☐

8 I do not want my name used in the research report. Yes ☐ No ☐

9 I have agreed to sign this consent form voluntarily. Yes ☐ No ☐

_____	_____	_____
Participant's initials	Signature	Date

Appendix 3: Interview Schedule for Service Users

Title if the research: A Study of Translation of Measure and Prevalence of Pre-operative Anxiety, and Patients' Preference of Non-Pharmaceutical Pre-operative Anxiety Reduction Intervention in Nigeria

Opening of the interview

My name is Sabo Saleh Dagona. I am a PhD student in the University of Bradford, United Kingdom. I am conducting this research as part of the requirement of my PhD studies.

Thank you for agreeing to participate in this research.

The research is designed to translate a measure of preoperative anxiety into Hausa language. You will be asked to provide information about your understanding of a translated questionnaire, factors responsible for your preoperative anxiety and your preference of non-pharmaceutical pre-operative anxiety reduction interventions. The interview will be tape recorded and the researcher will be taking notes of some vital information. Both the audio taped and written information will be kept in a password protected computer and will be destroyed immediately after the research.

The interview questions

How do you feel when you were told you will have an elective surgery?

Rationale: To establish what the patients' feelings are, when they were told they would undergo elective surgery.

What are the things you fear most about the surgery?

Rationale: To know the aspects of surgery being feared most by the patients

What have you been thinking about from the time you were told you will undergo surgery?

Rationale: to know about the patients' pattern of thoughts pertaining the surgical operation.

What do you expect from the operation?

Rationale: Patient's expectation of the procedure is linked to the fear they have.

There are different methods of reducing preoperative anxiety. Do you know any of these methods?

Rationale: To evaluate the patients' knowledge of the methods of reducing preoperative anxiety.

Basically, there are two major methods of reducing preoperative anxiety, i.e. the pharmaceutical method and the non-pharmaceutical method. The former consist of administering drugs while the later involves a variety of non-pharmaceutical approaches.

Which among the two would you prefer?

Rationale: To determine patients' preference of the major approaches for reducing preoperative anxiety

Is there anything you would like to add?

Rationale: To obtain any information from the participants that have not been asked or provided during the interview.

Thank you for your cooperation and participation.

Appendix 4: Structured interview Questions

Structured interview to find out whether the instructions, response format and items of the translated version of the questionnaire are well understood.

Do you understand the instructions (how to respond to the questionnaire?) Yes ☐ No ☐

If yes please, rate your understanding of the instructions on the questionnaire.

A not understood B somewhat understood C understood D well understood

Do you understand the response format (choices you are to make)? Yes ☐ No ☐

If yes, rate your understanding or the response format of the questionnaire

A not understood B somewhat understood C understood D well understood

Is the language used in the questionnaire very clear to you?

Yes ☐ No ☐

If yes, please rate your understanding or the response format of the questionnaire

A not understood B somewhat understood C understood D well understood

Do you understand the contents of all the items in the questionnaire?

Yes ☐ No ☐

If No, please indicate the item you did not understand.

Item(s) --, --, --, --, -- and –

Why is/are the item(s) not understood

A the wordings not very clear

B item(s) is/are ambiguous

C other (please specify)

Thank you

Appendix 5: Amsterdam Preoperative Anxiety and Information Scale- English Version

	Not at all	1	2	3	4	5	Extremely
1. I am worried about the anaesthetic		☐	☐	☐	☐	☐	
2. The anaesthetic is on my mind continually		☐	☐	☐	☐	☐	
3. I would like to know as much as possible about the anaesthetic		☐	☐	☐	☐	☐	
4. I am worried about the procedure		☐	☐	☐	☐	☐	
5. The procedure is on my mind continually		☐	☐	☐	☐	☐	
6. I would like to know as much as possible about the procedure		☐	☐	☐	☐	☐	

The subscales

Anaesthesia-related anxiety	Sum A =1+ 2
Surgery-related anxiety	Sum S = 4 + 5
Information desire component	= 3 + 6
Combined anxiety component	Sum C = sum A + sum S (1 + 2 + 4 + 5)

Appendix 6: Amsterdam Preoperative Anxiety And Information Scale- Hausa Version

	Bayani	**Ko kadan ban amince ba**	**Ban amince ba**	**Ban tabbata ba**	**Na amince**	**Na amince sosai**
1	Na damu da maganin kashe ciwon da za a yi mini.					
2	Ko yaushe ina tunanin maganin kashe ciwon da za a yi mini.					
3	Ina son sanin komi game da maganin kashe ciwon da za a yi mini.					
4	Na damu game da aikin tiyatar da za a yi mini.					
5						
6	Ko yaushe ina tunanin aikin tiyatar a zuciya ta.					

Appendix 7: University of Bradford Ethical Approval Letter

Research & Knowledge Transfer Support

BD7 1DP

12" July 2016

Dear Sabo

Ethics Application: E543 Uduak Archibong/Sabo Saleh Dagona

Title: Preoperative intervention as a means of reducing anxiety in patients undergoing elective surgery: a feasibility study

We write to confirm that your ethics application and documents for the study named above have now been reviewed by independent reviewers and the Chair of the Research Ethics Panel.

We are pleased to inform you that this research study has been given ethics approval, with no further ethical scrutiny required.

Please note that this approval relates to the study and information you have submitted. Should there be any changes, you must stop your study and inform ethics@bradford.ac.uk. Once we have reviewed your changes and given approval, only then can you recommence the study. This protocol must be followed otherwise your original approval will be invalid and withdrawn.

Please add a sentence onto any materials that are shared with participants confirming that ethics approval has been granted by the Chair of the Humanities, Social and Health Sciences Research Ethics Panel at the University of Bradford on 12" July 2016.

Yours Sincerely,

Dr Clare Beckett-Wrighton

Chair of the Humanities, Social and Health Sciences Research Ethics Panel
University of Bradford

E: ethics@bradford.ac.uk.

University of Bradford +44 (0)1274 236000, Richmond Road Bradford, West Yorkshire BD7 1DP, UK

Appendix 8: List of Publications and Conference Presentations

1- Gender Difference in Preoperative Anxiety in Patients Undergoing Elective Surgery: A Literature Study

By

Sabo Saleh Dagona, Uduak Archibong (PhD) and Tracy McClelland (PhD)

Poster presented at MDIC conference, 15th -20th June, 2015

2- Translation and cross-cultural adaptation of Amsterdam preoperative anxiety and information scale into Nigerian Hausa Language

By

Sabo Saleh Dagona, Uduak Archibong (PhD) and Gabrielle Tracy McClelland (PhD)

Paper Presented At International Conference of Psychology and Behavioural Science, Organised by Global Psychology and Language Research Association (GPLRA), Asian Institute of Technology, Bangkok, Thailand- 20th-21st July, 2017. *(In press awaiting publication)*

3- Preference of Non-Pharmaceutical Interventions for Reducing Preoperative Anxiety among Hausa Speaking Patients Undergoing Elective Surgery.

By

Sabo Saleh Dagona, Uduak Archibong (PhD) and Tracy McClelland (PhD)

A paper presented at third conference of the world council for psychotherapy (WCP) Nigerian chapter. Organised by school of psychotherapy and health sciences, Okija, Nigeria *(Affiliated to Sigmund Freud University, Vienna, Austria)*
(Date: 9th – 12th May, 2018)

4- Prevalence of preoperative anxiety in patients undergoing elective surgery

By

Sabo Saleh Dagona, Uduak Archibong (PhD) and Gabrielle Tracy McClelland (PhD)

5-Variations in factors Responsible for Pre-operative anxiety Among Black and White Surgical Patients: Considerations for Diversity Interventions

By

Sabo Saleh Dagona, Uduak Archibong (PhD) and Gabrielle Tracy McClelland (PhD), A Poster to be presented at MDICAC conference, 26 June, 2018

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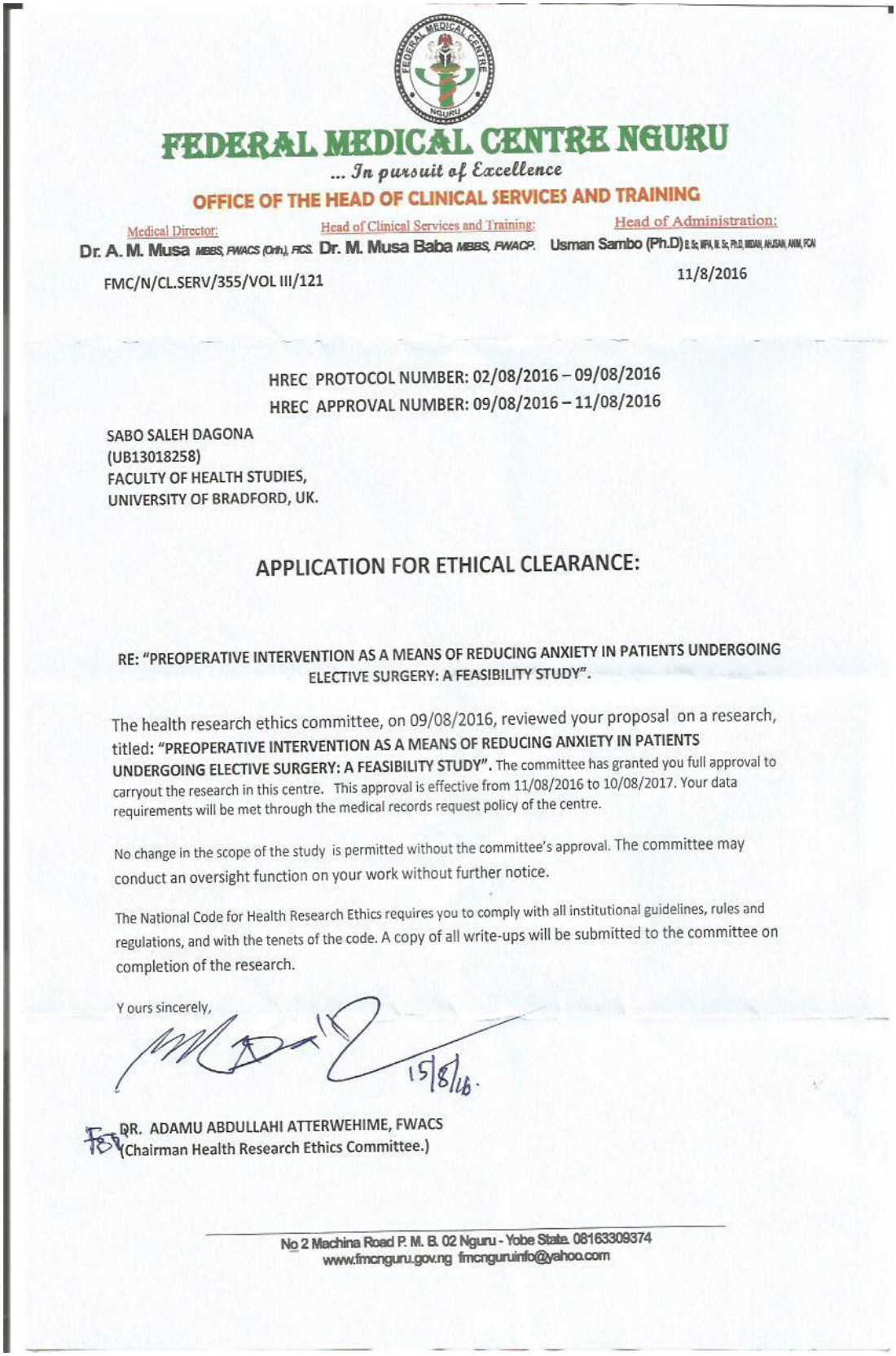
Appendix 9: List of Abbreviations

1	APAIS	Amsterdam Preoperative Anxiety And Information Scale
2	APAIS-H	Amsterdam Preoperative Anxiety And Information Scale-Hausa Version
3	NHS	National Health Service
4	PICO	Population Intervention Comparator(s) Outcome
5	RCT	Randomised Controlled Trials
6	DSM -5	Diagnostic and Statistical Manual of Mental Disorders 5th Edition
7	ASA	American Society of Anaesthesiologists
8	STAI	State Trait Anxiety Inventory
9	STAI-S	State Trait Anxiety Inventory-Short Version
10	VAS	Visual Analogue Scale
11	MUIS	Michel Uncertainty of Illness Scale
12	CDC	Centre for Disease Conrtol
13	MRSA	Meticilline Resistant Staphilacocus Auris
14	MANOVA	Multivariate Analysis Of Variance
15	SPSS	Statistical Package of Social Sciences
16	APS	Acute Pain Service
17	HADS	Hospital Anxiety And Depression Scale
18	VRS	Verbal Rating Scale
19	IPA	Interpretative Phenomenological Analysis

20	PPE	Preoperative Patient Education
21	OPKQ	Orthopaedic Patients Knowledge Questionnaire
22	MEQ	Modified Empowerment Questionnaire
23	ICU	Intensive Care Unit
24	BPI-SF	Brief Pain Inventory-Short Form
25	SV-POMS	Short Version Of The Profile Of Mood States
26	GABA	Gamma-Amino-Butyric-Acid
27	BII	Blood-Injection-Injury
28	GAD	Generalised Anxiety Disorder
29	OCD	Obsessive Compulsive Disorder
30	PTSD	Post-Traumatic Stress Disorder (PTSD)
31	FWT1	Forward Translator 1
32	(FWT2	Forward Translator 2
33	BPS	British Psychological Society
34	ISPOR	Pharmaco-Economics And Outcome Research
35	ASPA	Anaesthesia- And Surgery-Dependent Pre-Operative Anxiety
36	EORTC	European Organisation For Research On Treatment Of Cancer
37	WHO	World Health Organisation
38	PWASQS	Patient Willingness To Ask Safety Questions Survey
39	DMP	Decision-Making Preferences

Appendix 10- Ethical Approval Letter, Federal Medical Centre, Nguru- Yobe State, Nigeria



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FMC/N/CL.SERV/355/VOL III/121

11/8/2016

HREC PROTOCOL NUMBER: 02/08/2016 – 09/08/2016

HREC APPROVAL NUMBER: 09/08/2016 – 11/08/2016

SABO SALEH DAGONA
(UB13018258)
FACULTY OF HEALTH STUDIES,
UNIVERSITY OF BRADFORD, UK.

APPLICATION FOR ETHICAL CLEARANCE:

RE: "PREOPERATIVE INTERVENTION AS A MEANS OF REDUCING ANXIETY IN PATIENTS UNDERGOING ELECTIVE SURGERY: A FEASIBILITY STUDY".

The health research ethics committee, on 09/08/2016, reviewed your proposal on a research, titled: **"PREOPERATIVE INTERVENTION AS A MEANS OF REDUCING ANXIETY IN PATIENTS UNDERGOING ELECTIVE SURGERY: A FEASIBILITY STUDY".** The committee has granted you full approval to carryout the research in this centre. This approval is effective from 11/08/2016 to 10/08/2017. Your data requirements will be met through the medical records request policy of the centre.

No change in the scope of the study is permitted without the committee's approval. The committee may conduct an oversight function on your work without further notice.

The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations, and with the tenets of the code. A copy of all write-ups will be submitted to the committee on completion of the research.

Y ours sincerely,

15/8/16.

DR. ADAMU ABDULLAHI ATTERWEHIME, FWACS
(Chairman Health Research Ethics Committee.)

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